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THE OPHTHALMIC RECORD

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The September number of THE OPHTHALMIC RECORD will contain, amongst others, an original article by Charles W. Kollock, M. D. "Further Remarks Upon the Surgical Treatment of High Myopia, with the Report upon Additional Operation;" one by S. Mitchell, M. D., "Injury to the Eye from Explosion of a Water Glass;" one by Brown Pusey, M. D., "A Box for Mounting Eye Jars." There will also appear abstracts, editorials, society reports and personals and items of interest to the profession.

THE RECORD particularly desires short practical papers on any subject connected with Ophthalmology. These will be published at as early a date as possible. It is understood that, unless otherwise arranged, original articles, when accepted, are contributed to the RECORD exclusively. Illustrative cuts will be made at the expense of the journal, and proofs for correction will be sent to authors when desired. Reprints with covers will be furnished at cost. The RECORD will be issued monthly, and each number will contain about 54 pages of reading matter.

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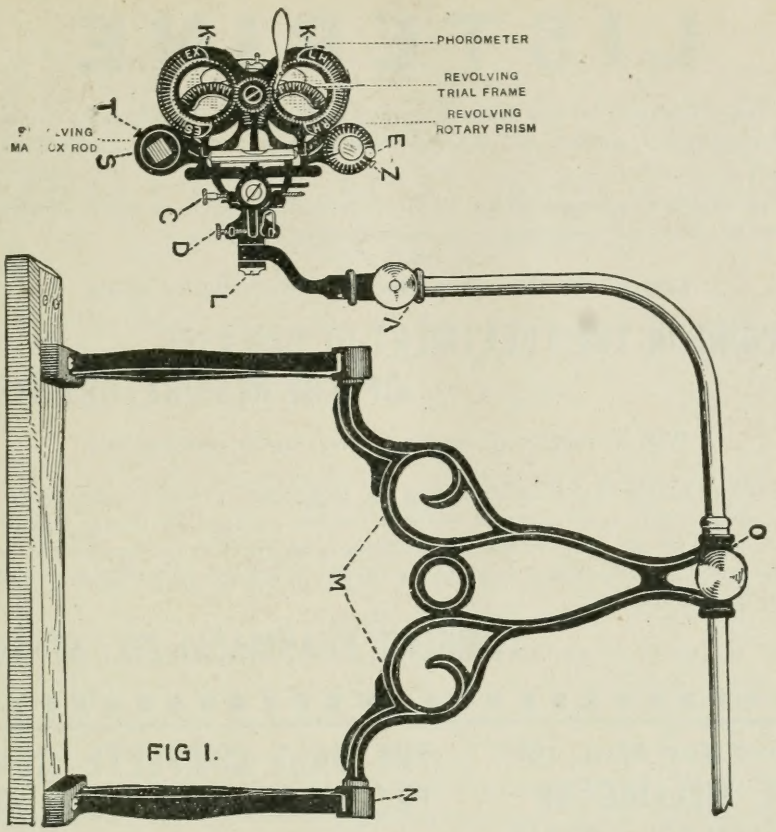

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THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME X. No. 8. CHICAGO, AUGUST, 1901. NEW SERIES.

ORIGINAL ARTICLES.

ADVANCEMENT, FORMS OF OPERATION AND WHEN INDICATED.

BY FRANCIS VALK, M. D.
PROF. DISEASES OF THE EYE, NEW YORK POST-GRADUATE SCHOOL AND HOSPITAL.

Our chairman having kindly offered to me the opportunity of presenting to you this paper on the advancement of the ocular muscles, I accepted it in the same spirit and trust that the views which I may advance will be of interest to the members of the section.

Let me state first, that by the designation of the paper as advancement, I judge that he intends any operation that may shorten the straight muscles of the eye in their long axis and not by the usual meaning of the term as generally understood. Hence I shall speak of the operation for the advancement of the tendon and the operation of shortening of the muscle, with the insertion of the tendon, as a fixed point.

With this explanation we may first consider the operation in its various forms, as advised or practised by those of us connected with ophthalmological work and also the indications for the operation selected, in the many conditions of muscular imbalance, from that of simple latent squint to that of the most extreme fixed squint, either convergent, divergent or vertical, or the so-called paresis of divergence.

Advancement proper, means the changing or bringing forward the insertion of the tendon of one of the straight muscles of the eye, from its normal position of attachment to the eye-ball to another in the same plane, but nearer to the cornea. But, in my opinion, as the same effect may be obtained by shortening the muscular band, at its insertion into the sclera, I shall include the operation of shortening under the general term of advancement.

Although first proposed to us by von Graefe, the Critchett's oper-

ation for advancement has been the method usually performed since 1862.

This operation consists of the attachment of the severed tendon to a position on the eye-ball nearer to the cornea by the means of three sutures. The two outer ones being fastened to the conjunctiva and the underlying tissue, above and below the cornea, at or near the vertical meridian and the central suture to the conjunctiva at the corneal margin.

All the various modifications of this operation simply follow the same plan but the objections to the use of this method has been that we may tie one of the sutures tighter than the other and so cause a certain amount of torsion.

This objection, however, has been met by the modification of Prince, who proposed the use of the single suture and the loop which would tend to adjust itself after it had been tied.

Schweigger's proposition to remove a measured portion of the tendon and muscle is not practical, as I understand it, as for example I would ask, how much shall we measure off in a case of latent squint?

Stevens has suggested a very neat and delicate advancement of the tendon by having it fastened in a pocket under the conjunctiva. This is an operation that may be very useful in heterophoria, but in an advancement for fixed squint we can hardly gain sufficient effect.

I now come to the operation of shortening, an operation in which my hands has accomplished the best and most satisfactory results in nearly all cases. I think Savage is entitled to claim the introduction of this operation, but at the same time I was also working on the same lines and, moreover, as I used the cat-gut suture in my operations while Savage recommended the use of silk, with a different mode of putting in the suture, I think I can fairly claim some originality in the operation.

This operation as I have performed it—in latent, fixed or paretic squint—is as follows: After the eye has been properly prepared with a solution of boracic acid and a solution of cocaine used or an anaesthetic if necessary, the lids are separated by a speculum and the conjunctiva raised with the forceps over the lower or upper point of the insertion of the tendon. I then make a vertical incision followed by one horizontal, forming an L. This is dissected loose from the under-lying tissue and then an opening is made in Tenon's capsule and the small hook is passed beneath the tendon, as the point

of the hook comes out, another hook is inserted in an opposite direction and the two hooks forcibly drawn apart, so exposing the tendon and part of the muscle. I now pass the small instrument, called twin strabismus hook—beneath the muscle and the hooks are allowed to separate by the action of the small spring in the joint and the two hooks are then removed. We now have the muscle and the tendon fully exposed and ready for the suture. Now taking a piece of sterilized cat-gut from the capsule, we thread the needle and pass it first through the lower part of the tendon, then through the muscle, as far backward as we wish to make the "tuck," passing from within outward. It then goes across the belly of the muscle and is passed through, from without inward and back to the tendon where it passes from within outward, at a point corresponding to its first insertion. As the ends are tied over the tendon at this fixed point, we see readily the "tuck" formed as the muscle belly is drawn forward and its long axis shortened. However, in case of fixed squint, I do a complete tenotomy of the opposing muscle before the suture is tied.

"When indicated." It seems to me that the most important question which can arise tonight is, namely, the indications for this operation, as this is the problem that at once confronts the ophthalmic surgeon and he may well ask himself, how shall I interpret the results of my examination? Will I be justified in performing an operation? and what will be the final result? Can we not give the broad and general answer, that all forms of latent squint or heterophoria, to that of fixed squint or heterotropia, are due to a deficiency in the power of some one of the straight muscles to move the eye-ball, and if so, is not the operation of advancement or shortening indicated? I think we can answer that question in the affirmative and then we must seek out the special indications as to what particular muscle is deficient in power.

To answer the special indications leads me, possibly, somewhat beyond the scope of this paper, for we may differ as to the mode or method on which the decision of our examination will depend. Hence I may be pardoned if I take up your time while I state my own procedure in my examination of the muscular balance and what I may read from these examinations.

Let me state at once that I have no confidence—except as confirmatory tests—of any method of examination that will "take the higher centers off their guard," or, in other words, to destroy the fusion force or guiding sensation of the eyes. Furthermore, in the

words of the same writer (1) quoted above, "binocular single vision is one of the brain's most complicated automatic functions. It concerns a cerebral—or governing—and a peripheral—or executing—apparatus in the most intimate association. The unconscious preservation of binocular single vision is so deeply rooted a thing in the human automatism that something, *some trick,* is needed that will temporarily set aside the dominating influence of the cortical centers over the eye-balls and their muscles. Only in this way can latent deviating tendencies in the peripheral portion—the eye-balls—of the binocular visual apparatus be revealed, etc." So the writer asks us to perform "some trick" to deprive the eye of this most beautiful and extremely important function, the fusion force in the control of single binocular vision. A proposition that I cannot agree to in making my examinations.

Now on this fusion force I base all my indications, but at the same time I supplement this with the various tests that destroy it—but simply as confirmatory—such as the phorometer, the Maddox rod, the red glass and the tropometer.

With these tests, the first two give me the muscle balance, deprived of the fusion force and with the tropometer I note the excursions of the eye-ball in the field of fixation. The use of the tropometer I consider an excellent confirmatory test, as it seems to be a truly objective one, and very useful in slight cases of paresis. *But* before I would attempt any operative procedure on the eye muscles I must read my indications from the old and simple tests of the power of duction with the prisms; with the guiding sensation fully active and commencing with the eyes as nearly in the "first position" as possible.

If then we accept this test as having any decided merits—and I fear some of you will deny it—the question of the operation must depend on the relation or ratio of the one muscle to that of the other as antagonistic. We are justified in this thought because it is clearly indicated by the physiological size, weight and insertion of the straight muscles of the eyes.

The text-books may tell us that this test is not reliable, that the muscles will show a varying power to move the eyes under the stimulation for single binocular vision, and although this is true, yet repeated tests will show where the deficiency exists and how we shall correct it with our operations.

Do not the physiological conditions mentioned above show us

(1) Wendell Reber, *Jour. A. M. Assn.*, Jan. 19, 1901.

that nature intended the eyes should have the power—with the desire for single vision and the necessary use of the eyes—to move the eye-balls in certain directions and greater in one direction than the other; that the interni should be the most powerful—even independent of the power of convergence, controlled by a separate center of the brain—and next to this the externi, to control the lateral movements; then we have the inferior, to control the downward movements and lastly, the superior, in nature the weakest of all.

Under these conditions and to formulate a standard of what we consider a good muscular balance should we not find that the power of adduction shall be from two to four times greater than that of abduction and the power to turn the eyes downward somewhat greater than that of sursumduction?

Now we find the power of abduction, more or less, one of a fixed condition, under which the eyes will diverge about six or eight prism degrees, so as to fuse or blend the images formed on the retina—this is the usual power, though it may and does vary very often—and then we may expect to find the power of adduction anywhere from twelve to thirty prism degrees without having any muscular imbalance in the lateral acting muscles. Similarly, we will find the sursumduction one, two or three degrees in each eye and the opposing muscle will show deorsumduction of about one degree greater. With this condition of the muscular balance fully confirmed, by several repeated tests, I do not think it possible that we can have any muscular imbalance, without regards to what the other tests may develop when deprived of the fusion force.

Thus I find my standard and any noticeable deviation from that standard will be my indications for an operation.

In esophoria we find adduction too high, with decidedly weak abduction, as low as two degrees and possibly crossed diplopia with the red glass. In exophoria, we find abduction very high or adduction very low even less than abduction, and are not the indications very clear, that we must render the weak muscles more powerful to act and so improve the fusion force of the eyes. Then in latent vertical tendencies, how frequently we find the superior of the one eye so much more powerful than its fellow of the other eye? If this condition should be slight you may simply need prisms with the proper glasses, but if pronounced, you will be pleased with the result of a shortening of the weak superior rectus. Furthermore you may find a decided tendency for both eyes to turn upward or downward, as

shown by the prism test, and again the indications point to an operation that will increase the muscular power. All these indications show us very clearly that an advancement is needed, or as I prefer it, a shortening.

Now in reference to the effects of our operations. What will they be? If we have diplopia, either crossed or homomymous, from slight paresis or decided weakness in the muscular power, of about twenty or thirty degrees, then I think an advancement, either by the old operation or by Prince's single suture, will be clearly indicated, but if the diplopia shows only ten or fifteen degrees, then a shortening will meet all the indications. If we have no diplopia, but a manifest tendency to an imbalance, either vertical or lateral, then, with good vision and the guiding sensation active, we may shorten the weak muscle fearlessly, inasmuch as the fusion power will adjust the eyes to the new conditions, only remember to limit the extent of your tuck to that of the imbalance.

To take advantage of this fusion force I never use a bandage after the operation, except to protect them from any infection, and allow them to use the eyes while the absorption of the suture and the healing proceeds.

In convergent squint, with congenital amblyopia, the indications are to shorten the externus, with a tenotomy on the internus of the amblyopic eye, for the cosmetic effect alone, as in this class of cases I do not expect to attain binocular vision at any time. On the other hand, if we have a squint of the second class—with good vision in both eyes—I would not do the operation for shortening unless the muscular power of the externus was shown to be weak by the examination with the tropometer. In cases of extreme convergent or divergent excess, after a too free tenotomy, I would advance the tendon at the first operation, as I do not think the operation of shortening will have sufficient effect in changing the position of the visual lines.

From my past experience with the operations of advancement and that of shortening, the indications depend on one of degree, in reference to the change in the position of the visual line; the power of the weak muscle, and that of the imbalance of the muscular apparatus, as shown by the tropometer and the tests of duction by the prisms.

To illustrate, a short time ago a surgeon performed a shortening on an internus, after an extreme over-effect following a very free

tenotomy on both interni. The operation was a complete failure, as the indications pointed strongly to an advancement, which was subsequently performed with success. I therefore consider that an advancement is fully indicated when we have a deviation of the visual line of more than thirty degrees of the arc.

That shortening is indicated in all cases of squint, if not too great, less than thirty degrees, combined with a tenotomy of the opposing muscle if necessary.

That in all cases of imbalance—without any deviation of the visual lines—the operation of shortening the weak muscle, thereby improving its power to turn the eye under the stimulation of the fusion force, is the best in my hands, as I have fully proved its application and usefulness.

That the operation of shortening is also indicated in cases of paresis and the socalled paresis of divergence, in which we have a latent insufficiency of the muscular power, that frequently becomes manifest when they are about forty years of age and presbyopia with hyperopia is present.

That in all cases of heterophoria or latent squint, either lateral or vertical, the best results will always be obtained by the operation of shortening, without any fear of an over-correction, as long as the guiding sensation of the eyes is free to act on the cerebral centers, as the process of healing takes place.

CHALAZION.

BY ALBERT B. HALE, M. D.,
OF CHICAGO.

Fuchs, is, I think, the one who has done most in recent years toward the study of chalazion. The little tumor of the lid seems to many such a trifling affair that it does not always occur to the surgeon to make it the subject of specific investigation, yet we should not be offended at the littleness of anything, when a pathological or surgical problem is concerned.

The older writers were content, as a rule, with the statement that a chalazion is a tumor of the tarsus, probably of the Meibomian gland, while they add a paragraph on encysted tumors. (Mackenzie on the Eye. Hewson edition. Blanchard & Lea. Philadelphia. 1855.) No attempt was made to give a distinct pathology. Others insist that the tumor is a retention cyst of the Meibomian gland arising from obliteration of the duct, without pausing to explain the cause of this obliteration. Galezowski, for instance (Maladies des Yeux, Paris, 1875) quotes Virchow on the pathology of tumors in general, and hints that there has been some inflammation within the tarsus. Fuchs has not been content with this but subjects the structure to a modern analysis. After describing the clinical picture as "a chronic affection of the Meibomian gland," giving the symptoms and treatment, he adds a paragraph on "infarcts in the Meibomian glands" which he divides into the usual lime concretions (lithiasis) and true Chalazion. Retention cysts, he says, are rare, and essentially different from chalazia. "In a chalazion there is a peculiar chronic inflammation which produces not pus but granulation tissue, probably—from a microorganism—first the epithelium of the acinus proliferates and an inflammatory infiltration is produced in the surrounding tissue of the tarsus. This growth of cells forms granulation tissue. In the granulation tumor are found the remains of the inspissated contents of the acini, and on the outside it is inclosed by a *capsule of connective tissue.* The way in which the latter develops is that the tissue surrounding the growing tumor is compressed by it and condensed more and more all the time."—Fuchs Diseases of the Eye, translated by Duane, New York. D. Appleton & Co., 1899, p. 168.

Thus we see that the condition with which we deal is not simply a retention cyst, but a true inflammatory product, with the associated but incidental accumulation of fluid, some of which is true glandular secretion, the rest, indefinite product of the unhealthy

cyst wall. This idea is supported by the researches of Recklinghausen, who has made a careful study of an allied cystic accumulation, the "ranula" of classic writers. Ranula, as he demonstrates, is by no means a mere stenosis of a salivary duct (Virchow's Archiv. Vol. 84, p. 472); this is an accidental result; the real condition is an inflammation of an adjacent mucous gland, the contents of which are quite distinct from saliva. In comparing other such processes, Recklinghausen traces the cyst formation to a hypertrophy of the gland element with dilatation of the canal, followed by degeneration of gland element, sometimes narrowing of canal and formation of independent fibrinous membrane. This is true not only of ranula, but also of the enlarged glands of Bartolini and of other cysts of acinus glands. According to Quain, the anatomy which to me seems to give the best account of the upper lid (Vol. 3, part 3, p. 6, fig. 6, tenth edition), "the Meibomian is a long sebaceous (acinus) gland imbedded in the tarsus; it consists of nearly straight tubes; the mouths are lined by stratified epithelium continous with that of the skin, but the ducts and glandular recesses have a lining cubical epithelium filled with the fatty secretion; according to Calosanti, the glands have a basement membrane."

Crocker (Diseases of the Skin, second American edition, 1893, Sebaceous Cysts, p. 744) says that in Chalazion the "gland is obliterated quite early and the secretion must come from the cyst-wall" (it is not a true retention cyst, therefore).

I refer to these authorities to indicate what is the modern view of our common chalazion. A good definition would run to the effect that it is a tumor in the lid involving the Meibomian gland, with obliteration of the glandular elements; it is limited by a surrounding membrane, within which are found the perverted secretion of the earlier gland, glandular debris, microorganisms and sometimes pus.

At times various attempts have been made to find a definite cause for the production of chalazion. Undoubtedly there is reason for the statement of the earlier authors that ill-health of the general system is a powerful underlying factor; so much is this so, that Mackenzie (loc. cit.) declares that a cathartic and tonics will often check the growth in its incipiency. Modern pathology however goes in other directions, and seeks rather local than general causes. Srezeminski (Recueil d' Ophtalmologie, August, 1900, abstracted in Annals of Ophthalmology, October, 1900, p. 687) would

explain everything from a bacterial viewpoint, but it is a question whether such an explanation is complete or even whether it is necessary, as irritation from other causes may pervert the gland from its normal function. I myself prefer to think that the general health has much to do with it, and would grant that some disorder may produce a thickened secretion, whereupon the constant rubbing to which the lid is exposed, aided perhaps by incidental germ infection, starts the inflammation which leads to chalazion.

The question of cause is not, however, the particular point in which my interest centers, because the condition is as a whole a simple and a relatively harmless one. It is known, of course, that occasionally chalazion may end in epithelioma, or in suppuration and partial destruction of the lid; and that often the added weight of the lid may give rise to annoying symptoms of asthenopia which are relieved only by operation. But be that as it may, good treatment, in the vast majority of cases, will end all symptoms and restore the lid to its normal condition. The question becomes merely one of good treatment, therfore.

In young children or sometimes in adults where the tumor has appeared suddenly, is not hard or thoroughly circumscribed, I am convinced that absorption may take place either spontaneously or by the help of heat and gentle massage; but these cases are comparatively few and follow no fixed rule. The great majority of cases are definite tumors, removable only by surgical interference. In studying the method, it is instructive to notice how little thought there seems to have been given to the real surgery of the condition. Billroth (and Winiwarter, Allgemeine chirurgische Pathalogie und Therapie, 15th German edition, Berlin, 1893, p. 916 and 917, and Crocker, Diseases of the Skin, second American edition, 1893, in discussing Sebaceous Cysts, with Chalazion) says emphatically that if possible every cyst should be excised with its cyst wall; and they express the opinion of modern surgery in general. On the other hand, textbooks so differ as to the method of using the knife, that, it would seem, no thought had been given to the matter beyond the statement for removal. For instance, Weeks (Diseases of the Eye, Student Quiz Series, 1892), Gould (Quiz Compend, Dis. of the Eye, p. 144), May (Dis. of the Eye, 1900, p. 40), Roosa (Dis. of the Eye, 1894, p. 237), Schmidt-Rimpler (Augenheilkunde, 6th German edition, p. 617), Nettleship (Dis. of the Eye, 5th American edition, 1898, p. 93), Fick (German edition, 1894, p. 147), Hosch (1897,

p. 97), Swanzy (Diseases of the Eye, 7th American edition, 1900, p. 207), Landolt (and Gygax, Ophthalmological Therapeutics, Philadelphia, Lippincott, 1898, p. 18) mention the conjunctival incision as the usual one, the last two, in fact, excluding the skin incision altogether. Panas (French edition Maladies des Yeux, vol. 2, p. 130), Harlan (Norris and Oliver, System of Diseases of the Eye, vol. 3, p. 89), Jessop (Dis. of the Eye, English edition, 1898, p. 29), Noyes (Dis. of the Eye, 2nd Edition, 1894, p. 254) prefer the skin incision. Some advocate the curette, others advise the use of a silver salt, a few mention nothing but the simple release of the cyst contents.

It is easy to make such a clinical division that the rule for operation can be sharply stated, so that not so much is left to chance or the whim of the surgeon. In my own experience, there are but two appearances of chalazion; one where the tumor has irritated or eroded the conjunctiva, and either softened or broken through this underlying tissue, the other, and in the upper lid the commoner class, where the conjunctiva and its adjacent tarsus are unaffected, but where the overlying tarsal wall is thinned, and the direction of least resistance made evident thereby. In both cases, the only thorough treatment is excision by the knife, in the one through the conjunctiva, in the other through the skin; in the former followed by the curette, because the knife cannot in that position be used freely without risk of too extensive destruction of tissue; but this operation is not, however, in my experience, so frequently indicated, and then is more often called for in chalazion of the lower lid, where the tarsus is thinner and the conjunctiva less intimately attached.

In the upper lid, the tumor is usually more chronic, is situated further from the free edge, and has produced less invasion of the surrounding tissue. (A condition nicely indicated by Fuchs in his illustration, Fig. 19, p. 163, American edition, 1899.) Here the only operation of choice is excision through the skin. With a lid-clamp fixed, the incision can be made parallel to the free border, the orbicularis muscle pushed carefully aside, and the tumor with its wall actually dissected from the tarsus in a thoroughly surgical manner; the curette may be gently used, but I am not sure that it does good, and certainly the silver solution is unnecessary. The skin is then replaced by one or two stitches, and the clamp removed. I cannot see why this method is decried at all; it is cleaner, more scientific and no more painful; the tumor is absolutely removed never to re-

turn; there is relatively less after-swelling, and no scar whatever need result.

103 State St.

HEREDITARY BINOCULAR OPHTHALMOPLEGIA.

BY C. F. HEARD, M. D.
NORTH EAST, PA.

Finding but small mention of this form of trouble in our leading works on ophthalmology I take occasion to make this contribution, not because of its value in ocular therapeutics, but simply as contribution on this relative rare disorder.

W. H., aet. 50, a farmer, married, called at my office in January, 1901, complaining of poor vision and general eye strain. On examination I found O. D. V. equals $\frac{15}{200}$, O. S. V. equals $\frac{15}{200}$, marked ptosis in both eyes with inability to move either eye alone or together in any of the eye excursions. On closer examination I detected capsulo-lenticular cataracts in each eye and a slight circular nystagmus.

He stated that he had two sons and a brother with "Drop Lids" and no movement of the eye balls, also, that his father was nearly blind with the same trouble. I had made a note of this at the time, but later my attention was called again to the condition by the brother, J. M., aet. 48, farmer, married, calling at the office. On examination O. S. V. equals light perception, O. D. V. equals $\frac{15}{100}$, with divergent squint in O. D. of 4 lines, associated with small ptosis in same eye. No cataracts, nerve heads pale, no movement of the eyeballs, except slight circular nystagmus. From J. M., I learned of two sisters that died at an early age, who also had "Drop Lids" and no movement of the eyeballs.

There was no obtainable history of other abnormalities. Incidentally W. H., has used over a period of two months without the slightest benefit, the much vaunted cataract remedy, Succus Cineraria Maritima.

SYPHILITIC RETINITIS.

BY HARRY FRIEDENWALD, M. D.,
ASSOCIATE PROFESSOR OF OPHTHALMOLOGY, COLLEGE OF PHYSICIANS AND SURGEON, OPHTHALMIC SURGEON TO THE CITY HOSPITAL, EYE, EAR AND THROAT CHARITY HOSPITAL.
BALTIMORE.

Illustrated.

"It is a question whether an inflammation of the retina occurs primarily as a result of syphilitic infection. Desmarres, among the French, and the English practitioners generally, are inclined to regard syphilis as commencing always in the choroid and affecting the retina only secondarily. However this may be, a serious inflammation of the retina often results from syphilis." (Lucien Howe, in DeSchweinitz and Randall's American Textbook of Diseases of the Eye, Ear, Nose and Throat, Philadelphia, 1899, p. 413.)

This quotation, which represents the view commonly held in this country, appears to me erroneous. To begin with, the latter portion of the quotation, I am convinced, that a great number of cases termed serous syphilitic retinitis are not due to disease of the retina, but to very fine opacities in the vitreous, which give to the retina an appearance of diffuse haziness. These opacities in the vitreous are easily overlooked. In my experience, serous inflammation of the retina is an extremely rare affection.

Concerning the first part of the citation, it is well to remember that many observers of authority are not only convinced that the retina may be primarily diseased in syphilis, but that they have described several forms of syphilitic retinitis.

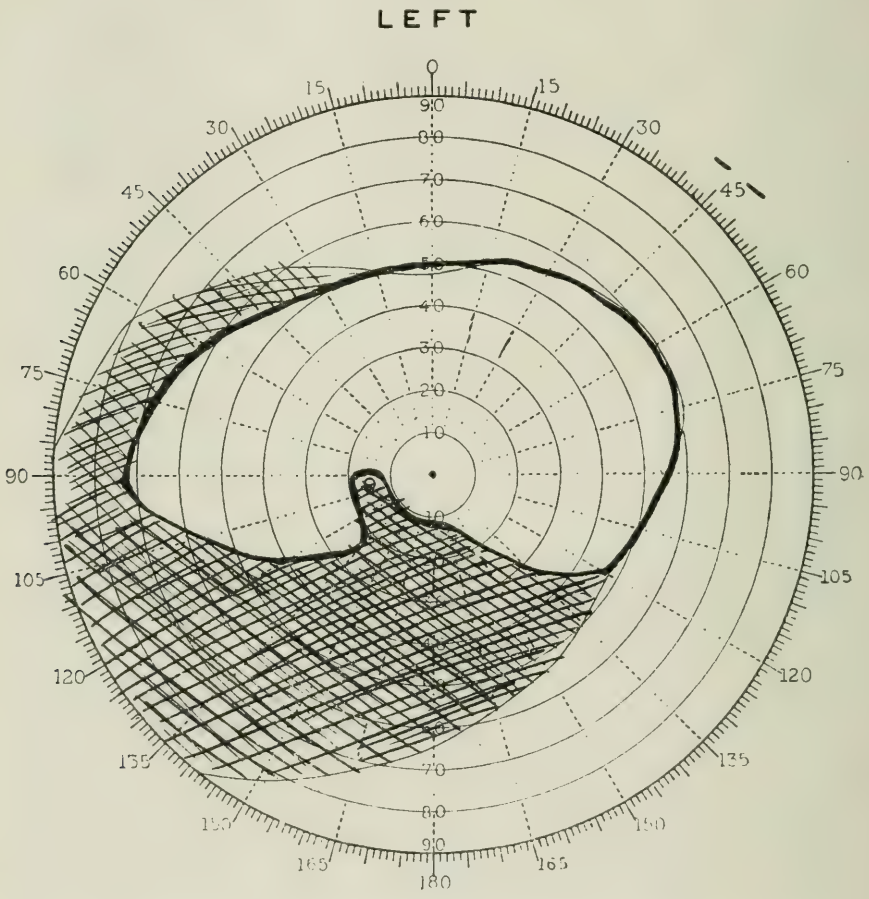
One form—of rare occurrence—has recently been under the observation of the writer. His purpose in publishing the case is to direct attention to a disease which has been much neglected.

Mr. H. D., white, aged 38 (No. 20,761), entered the Baltimore Eye, Ear and Throat Charity Hospital May 3, 1900.

History: Family history negative. Had ordinary diseases of childhood, and had vesical calculus three years previously, of which he was relieved. Otherwise enjoyed good health until May, 1898, when he contracted syphilis without marked secondary symptoms. In November, '99, he had a severe attack of iritis in the right eye. In January, 1900, the left eye became affected, the trouble gradually increased, and, in April, the sight of this eye was almost entirely lost.

Stat. praes., May 3, 1900. Right eye pupil small and bound

down by numerous synechiae. Ophthalmoscopic examination impossible. Left eye, a few synechiae, pupil easily dilated; ophthalmoscopic examination reveals a clear papilla, but a number of small white spots in the macular region and also below the papilla. The fovea is occupied by a somewhat larger white spot. At a point some distance below the papilla there are faint traces of old choroiditis.



One large branch of the superior nasal artery is markedly sclerosed, appearing as a white line. Vision of right eye fair, that of the left eye very bad, reduced to counting fingers held close by.

The left eye was examined at my request by a colleague of great experience, who suggested that the appearance was that of albumin-

uric retinitis. But the urine was normal. The patient was given vigorous specific treatment, including injection of bichloride of mercury in the gluteal region.

May 10. The condition of the left eye has changed greatly since the first examination. There is now much vitreous opacity, which partly obscures the papilla. There are also numerous small and very white spots arranged in groups along the inferior temporal vessels, similar to the spots previously described, in the central portion of the retina. In the macula there is one large white spot, around which numerous small spots are arranged. There are also many small white spots near the temporal edge of the disc, and near the upper margin of the latter there is one large white effusion. The nasal portion of the retina also contains many small white spots.

A number of large hemorrhagic spots have made their appearance along the course of the superior nasal vessels.

The pupil of the right eye, though still bound down at many points, is sufficiently dilated to admit of ophthalmoscopic examination and the fundus is found normal.

May 22. The retinal spots appear to be clearing up.

May 29. The condition has improved greatly. R E V = 20/70; L E V = 20/200. The patient is taking large doses of iodidé of potassium.

Sept. 8. The patient was allowed to spend several weeks in the country and returned greatly improved. The retinal spots have entirely disappeared. He is readmitted to the hospital. The treatment with iodide of potassium is continued.

Sept. 21. Last examination. The left papilla appears very pale, but not decidedly atrophic, and is somewhat obscured by vitreous opacity. There is a large number of fine extravasations of blood in the inner upper portion of the retina. The sclerosed vessel, described above (and frequently seen), cannot be found. All the vessels in the superior nasal region of the retina are either exceedingly fine and attenuated or have disappeared entirely. Along the course of the inferior nasal vessels there are a number of small unpigmented choroidal patches. The white spots in the macular region and near the papilla have disappeared without leaving a trace of atrophy or of disturbance of the pigment.

There are many fine and coarse opacities in the anterior portion of the vitreous.

The right pupil is still very irregular, the left is perfectly round.

The color of the right papilla is decidedly pinker than the left. The right fundus is normal.

Vision has improved to almost normal in the right eye; that of the left eye is about $\frac{20}{60}$. The field of vision of the right eye is perfect; the field is very defective (see appended chart). The lower part of this field is almost entirely lost, and from the shape of the defect it is evident that the cause is a disturbance of the vascular supply.

The patient now left Baltimore to return to his home in the South, and a later report received from him was very favorable.

In this case we have the occurrence of severe iritis in the right eye, followed by a mild attack of iritis in the left; this attack is associated with slight choroiditis and marked retinitis. It is scarcely necessary to point out the reasons for regarding this as a case of syphilitic retinitis. Not only were the spots in the retina of the characteristic appearance of retinal lesions, but they disappeared without leaving a trace of pigment atrophy, which is always the vestige of choroiditis. Besides this there was marked evidence of vascular disease of the retina. It is true that there was some choroiditis previous to our first examination, and perhaps during the attack of retinitis, but the slight evidences of choroidal atrophy indicate that this was relatively very unimportant in comparison with the retinal affection.

The angiosclerosis observed in this case is noted in many others, a fact which lends weight to the view that syphilitic retinitis is due to endo- and perivasculitis. (1)

(1) See Michel, *Lehrbuch d. Augenheilkunde.*
Brailey and Edmunds. *Oph. Hosp. Rep.*, 1881 and 1882.
Nettleship, *Oph. Hosp. Rep.*, 1886, vol. xi, p. 1.
Bach, *Arch f. Augenheilk*, 1893, xxviii, p. 67.
Appel, *Ueber spec. Gefaesserkrankung des Auges.* Dissertation. Wuertzburg, 1894.
Ostwalt, *7th Internat. Ophth. Congress*, 1888.
Seggel, *Deutsch. Arch. f. Klin. Med.*, 1889.
Haab, *Correspondenz bl. f. Schweizer Aerzte*, 1886, p. 152.
Magnus, *Zehender's Klin. Monats bl.*, 1889, p. 465.
Hosslin, *VI. Bericht der Kuranstalt Neuwittelsbach*, 1892.
Nagel, *Arch. f. Augenheilk*, 1898, xxxvi, p. 369.
The condition is beautifully shown in Magnus' Ophthal. Veraenderungen, etc., Breslau, 1893, pl. vii.

The vascular condition in the upper nasal portion of the left

eye in the above case is very similar to that described by Haab, Magnus and Seggel.

The period intervening between the infection and the outbreak of retinitis was almost two years. This is in accord with the cases hitherto described.

1029 Madison Avenue.

A CASE OF SPONTANEOUS COUCHING OF A CONGENITALLY DISLOCATED LENS.

BY T. B. SCHNEIDEMAN, M. D.,
PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC.

J. E. T., a boy had had poor sight from birth. In 1893 he became a patient of Dr. Edward Jackson. The boy was brought at intervals to Dr. Jackson, and in his absence to me. From Dr. Jackson's notes I extract the following: "1893; aged 12, eyes hyperaemic and irritable; the left shows a faint nebula at center of the cornea. Anterior chambers shallower on nasal side. Pupils dilated with homatropin to Right 9 mm., Left 8.5 mm., show lenses 7.5 mm. in diameter decentered in. Refraction through lenses R.—16 equals $\frac{4}{12}$ m. mostly L.—16. equals moving objects. Ordered the above for distance, and R. and L.—10 for near."

When I saw the case first in 1895 the conditions were practically as noted. Thence onward the lenses of both eyes began to grow cloudy and the left lens finally became completely cataractous (and is so now) both lenses being partially dislocated into the anterior chamber. In consequence of the irregularity and increasing opacity the vision in the right eye had sunk when I last saw him to $\frac{4}{20}$. There was frequent hyperaemia, lachrymation, etc., of both eyes from ciliary irritation. As the angles of the chambers were largely free, the dislocation being but partial, there was no rise of tension.

In July, 1896, he was seen by Dr. Jackson, who noted: "Vision in the right eye has fallen to $\frac{4}{25}$ with glass; and in this eye the lens has sunk down until its upper margin just shows in the contracted pupil. The details of the fundus are not seen and the whole iris is tremulous."

May 6, 1901, the patient returned with the complaint that he could no longer see with the glass of the right eye (the left was blind from complete cataract, as noted above). What little sight he had in the right eye was obtained without any glass.

Upon examination of the right eye I was greatly surprised to find that the lens was absent from the pupil, the media perfectly clear showing every detail of the fundus with a high plus glass. The iris trembled with every movement of the eyeball. The lens had fallen backward into the vitreous humor and perhaps had been absorbed, for no trace of it was discoverable. The eye was entirely free from all redness and irritation. With + 13 D. Sph. ⊂ + 2.50 cy ax 105 (Shadow Test) the vision was $\frac{4}{6}$ partly, to the young man's great delight. The above was ordered for distance with + 3 added as cemented bifocals for near.

Some years ago (Proceedings of Philadelphia County Medical Society, 1894, and Philadelphia Polyclinic, August, 1894.) I reported a case of spontaneous absorption of a cataractous lens in a man aged 65, with which the present case may be compared. Spontaneous disappearance of opaque lenses seems to be a sufficiently rare occurrence to warrant being placed on record when observed.

SIMPLIFIED FORM OF STEREOSCOPE.

BY CHARLES A. OLIVER, M. D.
PHILADELPHIA.

Illustrated.

In the January, 1898, number of this journal I described an improved form of stereoscope, which at that time seemed to me to possess many points of advantage. As I daily used it for the study of extraocular muscle balance, the exercise of imperfectly working muscles, the proving of binocular vision, malingering, etc., I soon found that I was able to make quite a number of apparently trivial though very important changes in its mechanism. These, which gave me much better results in briefer periods of time, became so numerous that I found myself confronted with a practically new and greatly improved form of instrumentation: this I now offer to the profession.

The contrivance as at present constructed is made entirely of metal. Its weight has been much lightened. Its form, as can be seen in the accompanying sketch, is much more graceful than that of the original. It has been so carefully constructed that it is very rigid and remains fixed in any desired position. A broad flat tripod base with rubber feet contributes to give it stability. The triple set screws working upon the vertical telescopic tubes, have been removed, and replaced by a single set screw that controls any degree of inclina-

tion required. The lens carriers which are susceptible of graduated and independent rotation, have been fastened to the interpupillary bar in a less cumbersome manner. The mechanism for the obtainage and registration of degrees of vertical differences in the two optical centers in order to correspond with similar differences in the pupillary centers, have been placed in more easily manipulated positions and permit of finer differentiation. The adjusting arrangement for interpupillary distance has been rendered less complicated and made more efficacious. The spheroprismatic eyepieces have been loosely set in their containing ring holders in order that they may be rotated independently or combinedly to any point of angulation that may be ordinarily desired.

The sliding divisional wall between the two fields of vision has been greatly simplified and admits of greater adjustment. The focusing rod has been made much firmer and more compact, permitting a great deal easier and much smoother movement of the test holder along its length. The test holder is thinner, has a more delicate yet just as extensive movement as the old one, and cannot get out of order.

Carefully chosen and well executed cards have been newly prepared and accompany each instrument.

Messrs. Wall and Ochs, of this city, still continue to manufacture the instrument and have quite a number on hand.

SIMULTANEOUS RUPTURE OF THE CHOROID AND PARETIC MYDRIASIS WITHOUT PARESIS OF ACCOMMODATION.

BY ALEXANDER DUANE, M. D.
NEW YORK.

The publication of Dr. de Schweinitz's interesting case in the May number of the RECORD has impelled me to report a quite similar case from my own practice.

John H., aged 13, came to my office June 6, 1889. Two months before had been struck in the left eye by a corn cob, thrown at him by another boy. The blow was so severe that he fainted, and when he came to he had to be kept in bed and in a dark room for two days. The eye was much suffused at the time. The pupil was dilated; according to his father's statement, more so than now.

At the present time, both pupils large; left slightly larger than right. On exposure to light, right contracts to 3 mm. Contraction of left pupil, whether produced by light (direct or consensual reaction) or by convergence, is imperfect, the pupil always retaining a width of not less than 6 mm.

V, $\frac{15}{12}$—each: rejects all glasses. Accommodation normal in each eye.

Muscles normal in all respects.

In left eye two faint ruptures of the choroid, close to the disc and concentric with it; one, below the disc, running nearly horizontally, the other, to the upper temporal side of the disc, running obliquely. The two areas of rupture intersect near their ends, forming an obtuse angle. No pigmentation in their vicinity, and fundus otherwise normal.

The points of similarity between this case and that reported by Dr. de Schweinitz, are:

1. The coexistence of a rupture of the choroid with a paretic mydriasis, both evidently produced by the same traumatism.
2. The peculiar bifurcated form of the rupture.
3. The retention of normal vision in the affected eye.

In my case no notching of the sphincter border could be made out. The contusion may, however, have caused a laceration of the sphincter too minute to be discoverable and yet sufficiently great to impair the contractility of the muscle. This, I think, more likely than that the oculomotor nerve-endings in the iris were paralyzed by

the blow. A contusing force sufficiently great to produce actual permanent paralysis of these nerve-endings would be apt to leave some paresis of accommodation as well. The accommodation, however, here was intact.

That, nevertheless, a temporary paretic mydriasis may be caused by a concussion which does not produce a laceration of the sphincter, I can confirm from my personal experience. Some years ago, while playing tennis, I was struck in the eye with a ball flying with great force. The immediate result was severe pain, marked mydriasis, and considerable blurring of vision. All these symptoms passed away in the course of a few hours, leaving the iris as mobile as ever. Whether this transitory paralysis of the sphincter was associated with an equally transitory paralysis of accommodation I could not tell, as the sight was too much affected for me to settle this question satisfactorily.

A LID RETRACTOR.

WILLIAM E. BAXTER, M. D.

BOSTON.

Illustrated.

The chief merit, aside from being perfectly constructed, of the retractor here illustrated is its cheapness. It is made of nickeled wire, with large retractor on one end, and a smaller one on the other, and may be bent to suit any individual peculiarity of operator or patient; it is convenient to use in operating when one does not wish

to use a speculum as there is no long handle in the way, as is the case with the patterns in general use. In septic cases its cheapness is of great advantage enabling one to use a separate retractor for each patient, and when through with the case the retractor may be destroyed, if one does not wish to have them sterilized.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME X, No. 8. CHICAGO, AUGUST, 1901. NEW SERIES.

EDITORIAL.

VERTICAL MEDIAN AND HORIZONTAL FIXED PLANES OF THE HEAD.

In a former editorial it was shown that Listing's plane had no value when viewed from the standpoint of containing the axes of rotations of the eyes, for the reason that the equatorial plane contains the axis of every possible rotation, and therefore should be selected as the one for study. Neither is Listing's plane of any value as a plane of reference. There are, in the head, two fixed planes that are of exceeding value as planes of reference. The one is the vertical median plane of the head and the other the fixed horizontal plane of the head. The median plane passes down between the two hemispheres of the cerebrum and approximately mid-way between the two orbits. The horizontal fixed plane passes always through the optic chiasm, and in well-formed orbits, bisects the lines of origin of the interni and externi of both eyes, and passes on forward through the centers of rotation of the two eyes. Extended backwards it would pass approximately between the cerebrum and cerebellum. The vertical axes of the two eyes must be kept parallel with the median plane of the head, regardless of the point of view; and the transverse axes of the two eyes must be in the fixed horizontal plane of the head. This, of course, is accomplished by the oblique muscles. This predetermined relationship of the vertical and transverse axes of the eyes to the median and horizontal fixed planes of the head underlies the mental law, which gives us our ideas of direction; the mental law which gives us single vision with double images (the law of corresponding retinal points); and the mental law which gives us our ideas of verticality, horizontality and obliquity. In this short editorial it is not possible to discuss all of these points. To prove

the last statement made above, is an easy matter. With the head in the erect position, a line in space that coincides with the extended median plane of the head, or is parallel with it, and is at right angles to the fixed horizontal plane, *is a vertical line,* and will be so seen by eyes whose vertical axes are parallel with this plane. With the head in the same position, a line in space that coincides with the extended horizontal plane of the head, or is parallel with it, and is at right angles to the median plane of the head, *is horizontal,* and will be so seen by eyes whose horizontal axes coincide with this plane. Changing the position of the head does not change the idea of verticality. Let anything be done to destroy the parallelism that exists between the vertical axis of the eye and the median plane of the head, which at the same time would cause the transverse axis to lose its coincidence with the horizontal plane of the head, then lines that are really vertical and horizontal will be seen as oblique lines. This can be done by closing one eye and with the finger pressing on the other from below or above in such a way as to tort it, when a vertical line will incline correspondingly. As soon as the pressure is suspended the eye at once rights itself and the lines become vertical again. A paresis of an oblique muscle or of a superior or inferior rectus muscle will, of course, result in torsioning the eye. To such an eye a vertical line appears inclined in the opposite direction from the torsioning, but to the same extent. An oblique line in space that is parallel with the displaced vertical axis of the eye will appear to be vertical, thus showing that the projection is faulty because of the fact the vertical axis of the eye is no longer parallel with the median plane of the head. With the predetermined relationship existing between the vertical and traverse axes of the eyes and the median and horizontal planes of the head, ideas of verticality, horizontality and obliquity are fixed and correct, regardless of the position of the head. G. C. S.

REPORTS OF SOCIETIES.

AMERICAN MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

ABSTRACT REPORT.

St. Paul, June 4th, 1901.

The meeting was called to order at 2 p. m. by the Chairman, Dr. J. A. Lippincott, of Pittsburg.

The Chairman of the Section, in his address, spoke briefly of the great advances in ophthalmology during the past century and referred to the three great leaders in this line of work, Von Graefe, Donders and Helmholtz. Reference was made to the important subjects to be discussed at this meeting and the address closed with a feeling tribute of respect for Dr. Henry D. Noyes, whose death occurred during the year.

Treatment of Strabismus; Measures other than Operative. Dr. Edward Jackson, Denver, Colo.—Dr. Jackson believed that "important as is the operative treatment of squint, it is less widely applicable than the non-operative treatment. A large proportion of cases may be cured without operation. The number of cured will increase as it becomes customary to resort to the proper measures as soon as the deviation is noticed. In all cases non-operative treatment is essential to effect a perfect cure. The non-operative treatment for strabismus includes the entire treatment in many cases and the earliest treatment for all. For the majority of cases the time for treatment begins as soon as the squint is first noticed. As the nervo-muscle apparatus we are endeavoring to perfect is thoroughly plastic during the earliest years.

The things to be accomplished in the treatment of strabismus may be classified thus: first, the removal so far as possible, of all obstacles to binocular vision; under this head falls the operative as well as a very important part of the non-operative treatment; second, the establishment of binocular vision; and, third, the perfection of binocular vision. The latter two are to be effected wholly by non-operative treatment. When the patient is able to perceive simultaneously impressions made upon the two eyes binocular vision of some kind exists. The efficiency of the function at first has to be estimated by the ability to keep the images fused under varied conditions."

In practical importance correcting lenses outweigh all other measures in the non-operative treatment of squint. Their determination and use is the first step in the treatment of all cases and in every case the lens should accurately, correct all of the ametropia. A larger proportion of the failures to cure strabismus in the earlier years of life must be ascribed to the fact that the glasses ordered do not correct the ametropia. To treat these cases properly one must be able to measure refraction perfectly by objective methods and the best means of course is by skiascopy.

In order to compel the use of the previously deviating eye, Dr. Jackson recommended the use of the occlusion pad or bandage to be worn more or less constantly and this to be followed by the use of a mydriatic in the good eye for a time. Having established binocular fixation, exercises should be used for the development of binocular vision. For this purpose the author was accustomed to use the fusion types of Priestly-Smith, in a modified form, the Worth modification of the refracting stereoscope, the ordinary stereoscope and the reading bar, the latter especially for older patients during preparation for operations and in bringing about a new co-ordination of the eye movements after operation.

Treatment of Strabismus; Operative Measures. Dr. C. F. Clark, Columbus, Ohio.—Dr. Clark referred briefly to the many questions at issue concerning operative measures in the treatment of strabismus and of the widely different positions of those who favor tenotomies and those who, with Landolt, insist upon advancements. As the result of personal experience, he made the prediction that within a few years many of those who have depended heretofore mainly on tenotomies for the correction of strabismus, will find themselves adopting the more tedious but more conservative operation of advancement or resection as a routine practice. He offered as a general rule to be applied to such operations that whether we operate by tenotomy or advancement the effect of the operation must be so distributed between the various muscles as to preserve the control of the eye under all ordinary movements.

Dr. Clark's main argument in favor of advancement was that this operation increases the strength of one muscle without interfering with that of the others and hence added so much to the aggregate power of the group, whereas a tenotomy, in weakening one muscle, weakened the entire group just so much. The fact that the aggregate strength, and in fact the individual muscle strength, is

seldom above what it should be there seemed to be no just cause for doing any operation that would diminish it.

Strabismus; its Treatment. Dr. A. E. Davis, New York. The author opened his paper with a brief consideration of the physiology of the eye muscles and the importance in all cases of strabismus, and of insufficiency, of toning up the nervous system and removing any particular causes of strain. Considering the different tests for strabismus and their relative value before and after operation, he suggested the advisability of establishing a routine system of making these examinations. In the case of insufficiency, which he believed to be always a latent squint, he found the most reliable test to be that made with the ordinary prism for adduction, abduction and circumduction. In squint cases, the order of testing is, first, the perimeter, which he considered the best where it could be employed, secondly, the screen test, third, the Priestly-Smith tape-measure test, fourth, Hirschberg's test, fifth, the linear measurement test and sixth the prism test. Dr. Davis urged a trial of the non-operative treatment in all cases. In the way of operative measures he preferred the operation of Panas to all others, that is, the operation of stretching the strong muscles before tenotomizing them.

Tables were exhibited showing the results of non-operative treatment in 45 cases; the results of Panas' operation combined with non-operative treatment in 34 cases; and, the results of simple tenotomies combined with non-operative treatment in three cases. Dr. Davis believes that about 30 per cent of all cases of strabismus may be cured by non-operative treatment alone and that where operation is called for the Panas operation is safe in execution, quick in results and efficient.

The Cosmetic and Visual Results in Squint. Dr. J. M. Ray, Louisville, Ky.—Dr. Ray's conclusions were derived from a study of 100 cases under his own personal care in private practice during the last four years and were as follows: 1. The effect gained in the treatment of strabismus, whether parallelism of the visual axes be obtained by cycloplegic, glasses, exercises or the operation, is largely or we may say, wholly cosmetic. 2. Glasses should be adjusted to the eyes of squinting children at as early an age as possible and should be worn long enough to determine their effect upon convergence, before an operation is performed. 3. The use of occlusion pads, etc., are advisable, not so much in the hope of increasing vision as to improve the power of co-ordination in the recti muscles so

that when the child reaches a proper age for operation the power of simultaneous muscle action will not have been lost. 4. Binocular single vision is not present in more than 7 per cent of cases of squint and its production in a large percentage is uncertain and unsatisfactory. Parallelism of the visual lines does not mean binocular single seeing. 5. Cosmetic results can be obtained and maintained even where the fusion power is absent. 6. Congenital amblyopia is often present in eyes that do not squint and even in members of a family where squint in others is present. 7. In alternating squint if the hypermetropia is of a high degree the chances of producing parallelism are better than when the hypermetropia is low; in alternating squint with hypermetropia of a medium degree the necessity for an operation and the difficulties of producing parallelism by tenotomy are greater than in monolateral squint. 8. The effect of tenotomy is greatly influenced by the amount of abduction power present in the corresponding externus. 9. Two tenotomies on the same internus is bad surgery since it always leaves a sinking carbuncle.

Discussion.—The discussion of this subject was opened by Dr. Culver who stated that the operation for strabismus does not cure the affection, but simply provides a condition wherein the trouble may be cured. He advocated the non-operative treatment in all cases and operations only in a few.

Dr. Todd spoke of the difficulties in carrying out non-operative measures, but thought that patients should be as willing to subject themselves to this as to the frequent operations recommended by some. When operation is necessary he advocated advancement preceded by tendon stretching.

Dr. Savage advocated advancements in preference to tenotomies and called attention to some points which he considered necessary to be kept in mind in these cases. He thought that we should consider three things particularly, the converging of the eyes and the paralleling and planing of the visual axes. Consideration of these points led him to think it necessary to tenotomize the oblique muscles occasionally.

Dr. Baker said that he usually commenced his lectures on squint operations with the same advice to students that Puck gave to young men about to be married—don't. He very rarely performs such operations and of 105 cases managed on the non-operative plan 85 were cured and only 20 came to operation. He said that he was

surprised at Dr. Ray's conclusions concerning alternating squint. He had not found these the most difficult to treat but had been inclined to consider them all curable.

Dr. Thompson said that while in his earlier practice he had operated freely on these cases, he never operated now on a case until it had been under his observation for at least a year. He thought it should be impressed upon physicians that they should not send these patients expecting immediate operation.

Dr. Hotz spoke in favor of tenotomies and said that he feared many of the bad results obtained had been due to the operator and not to the principle upon which the correction by tenotomy is based If convergent strabismus was shown to be due to faulty action of the externus certainly an advancement would be justified but if it was the result of faulty action of the internus it would not be rational to leave the faulty muscle alone and produce an abnormal condition in the externus. He believed in doing tenotomies for slight conditions, advancement for the older cases and a combination of the two in excessive cases. He had found also that a simple tenotomy worked perfectly in alternating strabismus.

Dr. Wilder thought it important in all these cases to test the individual muscle strength and to proceed to a tenotomy or advancement according to the indications.

Dr. Black said he was inclined to believe that it might be possible to accomplish a considerable effect upon a moderate degree of squint without actually doing a tenotomy but simply following Panas' operation up to the point of stretching the muscle. He had attempted it in one case but could not say yet whether the results would be anything more than temporary.

Dr. Hubbell endorsed Dr. Thompson's remarks as to educating the general practitioner who is inclined now to believe this such a simple thing and that the child may be held off until the school period begins. He believed that the best results would be obtained by seeing the children early.

Address on the Origin and Development of the Instrument, Together with a Description of the Historic Exhibit of Ophthalmoscopes and Publications on Ophthalmoscopy, Prepared for this Meeting. Dr. H. Friedenwald, Baltimore, Md.—Dr. Friedenwald, with the assistance of Dr. Casey A. Wood, exhibited a remarkably complete collection of ophthalmoscopes, showing every step in the development of the instrument from the original crude form devised by

Helmholtz to the numerous perfected models of today. His description of the work at different stages of the development of the ophthalmoscope was very interesting.

The society extended a vote of thanks to this committee for the excellent exhibit and for the care and skill with which they had performed their duties.

Address on the Life of Helmholtz. Dr. Casey A. Wood, Chicago.—Dr. Wood's paper was an interesting and valuable contribution to ophthalmic literature. It would be impossible to abstract it and do the author justice. Every ophthalmologist should read it, if he had not the pleasure of hearing it delivered, and every American ophthalmologist will be particularly pleased with a point which Dr. Wood brought out and which was probably not known to most of us, that Helmholtz carried some of the bluest of American blood, his mother having been a direct descendent of William Penn.

Tarsadenitis Meibomica. Dr. M. F. Weymann, St. Joseph.—Tarsadenitis meibomica was described as "a subacute or chronic infection of the meibomian glands tending to periodical acute exascerbations and secondarily altering the whole structure of the tarsal cartilages, chiefly the upper." The etiology, "a diffusion through part or all of the meibomian glandular system of chalazial disintegration products and their cause." The pathology of chalazia was considered and they were divided into two general classes, the first of which undergoes an acute suppurative process and the other follows a slow course of disintegration ending in a chronic inflammatory condition of the cartilage as well as of the glands. The pathognomonic feature of the latter class was described as "an alligator leather appearance" on the conjunctiva lining the tarsal cartilage. The diffuse engorgement of the conjunctiva with its livid hue together with the marked swelling of the papillae produces an appearance that might easily be mistaken for trachoma. There is much thickening of the lids and there may be considerable smarting and itching.

Report of a Case of Retroflexion of the Iris. Dr. A. A. Hubbell, Buffalo.—Dr. Hubbell reported a very rare and interesting condition. The patient had fallen from a wagon and struck the left side of the head on the pavement, but does not think there was a stone or other object on the pavement to come directly in contact with the eye. When seen two weeks later there was ecchymosis of the lids with intense congestion of the episcleral tissue without pain.

The cornea was hazy, anterior chamber filled with blood and the tension somewhat diminished though there had been no laceration of the cornea or sclera and not even an abrasion of the conjunctiva. When, after treatment, the blood disappeared together with some floating debris it was impossible to find the slightest trace of the iris, ciliary bodies or lens. The pupillary area and reflex was the same size as the area of the total cornea. The fundus was perfectly normal and vision of $\frac{6}{60}$ was improved to $\frac{5}{12}$ with + 11 Ds. Other ophthalmologists saw the case and the conclusion was that the lens had become absorbed and that the iris having been thrown backwards throughout its whole extent and held there by the blood clot became fixed in this position so that it was not visible.

Treatment of Heterophoria; Non-Surgical Measures. Dr. George M. Gould, Philadelphia.—Prefacing his remarks with the explanation that his paper dealt with his own personal experience and that being limited to private practice, without hospital or dispensary clinical work, with intelligent co-operating patients, Dr. Gould said that "any operative treatment whatever for heterophoria is not only useless but bad" in that it makes a real cure more or less difficult and sometimes even impossible. He offered the following as indisputable facts; 1. In the vast majority of cases, heterophoria is an innervational affair. 2. It depends upon errors of refraction. 3. Proper spectacles are the principal effective means of cure, with the aid of prism gymnastics in exophoria.

Dr. Gould then considered in detail and in regular order the conditions of hyperphoria, esophoria and exophoria and laid down the treatment for each. This consisted in all instances in an accurate determination of the refractive errors, the prescribing of lenses, either in full correction of modified according to the kind and degree of heterophoria, and, in the case of exophoria, of prism gymnastics.

Treatment of Heterophoria; Surgical Treatment. Dr. G. C. Savage, Nashville, Tenn.—Dr. Savage, after making the statement that in all the "Heterophorias not curable by correction of errors of refraction, by prisms in positions of rest, or by rythmic exercises, should be subjected to operative procedure," took up a position in the extreme opposite to that held by Dr. Gould and seemed to become a radical supporter of operative measures. He considered that there were "two objects in view in muscle operations, the one is latering the tension of the muscle, the other is changing its plane of action." The operation may consist in partial tenotomy, shortening the mus-

cle tendon or in advancement. The author declared that "in no kind of heterophoria should a complete tenotomy ever be done." Much stress was laid upon the complication of heterophoria with cyclophoria and the author endeavored to show that this could be corrected by partial tentomies, believing, according to the amount of cyclophoria, a definite portion of the marginal fibres at the upper or lower edge of the lateral muscles uncut. When cyclophoria exists alone and is of sufficiently high degree to demand operation it was advised to operate on both inferior or both superior recti muscles and although the same results may be accomplished by dividing a few of the nasal fibres of advancing a few of the temporal fibres of the superior rectus, or, by dividing a few of the temporal or advancing the nasal fibres of the inferior rectus, it was thought to divide the nasal fibres of both superior recti or advance the nasal fibres of both inferior recti. This decision was made because in either case you cure a cyclophoria, but produce a double hyperphoria which is preferable to the cure of cyclophoria with the production of a double cataphoria, as would be the alternative.

Discussion.—Dr. Risley opened the discussion on heterophoria with the remark that he liked dogmatic statements but that he believed where they represented two extremes the truth would usually be found somewhere between them. He discussed the matter in a conservative way advocating the use of all non-surgical measures first, but admitting that there was a class of cases that would be improved by operation. He referred to the varying outlines of the average human skull and to the dependence of the shape of the eyeball upon the shape of the bony orbit and said he did not believe it would be possible to reduce to a law the innumerable abnormalities of ocular balance that may be produced by these abnormal anatomical conditions.

Dr. Dudley Reynolds laid stress upon the necessity for looking after the health and general nutrition of the patient as abnormalities in that direction often produced reflex ocular disturbances. He had, from experience, almost abandoned operative measures.

Dr. Colburn said that while fully realizing the serious nature of tenotomies he still believed the operation justifiable under proper conditions and that there was a class of patients where a proper consideration for the individual's needs and of his inability to give the months of time necessary for treatment by exercises, would make it

seem proper to operate for the relief that is secured in that way even if it were only temporary.

Dr. Williams exhibited a new instrument for determining the position of the axes of the eyes. He had been using it in his own practice for six months and had found it very useful in determining the amount of hyperphoria and the location of muscular insufficiencies.

Dr. Allport stated that he very rarely found it necessary to do tenotomies for muscular asthenopia. He believed that he secured fairly good results by attention to the general health, the correction of errors of refraction, exercise of the muscles, etc.

Dr. Clark said that his experience had been much the same as Dr. Allport's and yet some recent cases in his practice convinced him that he had been guilty of too much conservatism and that some of his patients might have secured relief in much less time had he operated early.

Dr. Hiram Woods said that he was doing tenotomies far less frequently than in former years. He had searched persistently for the cyclophoria which Dr. Savage described but had found it in only a very few instances.

Dr. Connor thought that much of the good secured by frequent partial teontomies was due to the hypnotic influence of the operator upon the patient and not to the operation itself. He had never seen what he could prove to his own satisfaction was any good resulting from a partial tenotomy.

In closing the discussion Dr. Gould said that he had not meant to imply that no case should be operated upon. He only meant to emphasize the importance of the non-operative treatment and he believed that if this was conscientiously carried out very few cases would come to operation.

Table of Paralysis of Ocular Muscles. Dr. H. M. Starkey, Chicago, Ill.—Dr. Starkey offered what he believed to be an advance in simplifying the methods of detecting the affected muscle in cases of ocular paralysis by the double image test. The work was in line with that published by Dr. Hotz some 7 years ago, and Dr. Starkey has been using it in his teaching with much success for several years. A diagram was exhibited showing the changes that occur with paralysis of each of the extrinsic muscles and this was accompanied by the following rules: 1. When a muscle is weakened, the other muscles turn the eye in a direction opposite to the action of the affected

muscle. 2. Projection of the false image is always in a direction opposite to the turning of the deviating eye. 3. The false image always appears to be displaced in the direction of the action of the affected muscle. 4. The distance between the images increases when the eyes are turned in the direction calling for the action of the affected muscle and diminished when the eyes are turned in the opposite direction.

Discussion.—Dr. Hotz endorsed the scheme presented by Dr. Starkey as did also Dr. Wilder who suggested some additions to show the torsion of images seen when the obliques are paralyzed.

Dr. Weyman thought that for teaching purposes the matter might be very much simplified by reducing the whole subject to three simple rules; first, that the diplopia appears in the direction of the affected muscle; second, whenever the eye refuses to follow because of paralysis the faulty image will always precede the other, in other words the fastest traveling image belongs to the paralyzed eye; and thirdly that homonymous diplopia belongs to paralysis of the external recti muscles.

Dr. Jackson thought it extremely important for practical reasons not to burden the mind with such a table as Dr. Starkey's, but to follow a plan similar to that outlined by the last speaker.

The Extraction of Hard Cataract without Iridectomy. Dr. S. D. Risley, Philadelphia.—Dr. Risley stated that up to a few years ago he had always performed the combined extraction, usually with preliminary iridectomy, but that the favorable results reported by other surgeons had led him to use the simple extraction during the past few years, with a few exceptions however, only in selected cases. The grounds for selection were the absence of any history or discoverable evidence of uveal disease, a promptly reacting iris, a pupil which dilates readily under a mydriatic and a ripe cataract. The history of long asthenopia preceding the failure of vision, a more or less discolored iris, sluggish in reaction, white patches about the lens capsule, a dark or brownish lens, congested conjunctiva with headaches and a protracted ripening of the cataract, furnish a group of conditions which excluded the case from simple extraction. In describing his technique, Dr. Risley said that he made his incision exactly in the clear limbus the width of the knife blade, 2 mm, above the horizontal meridian of the cornea and carried this directly up to the border of the cornea where it was made to dip backwards a little in order to form a conjunctival flap. The operations were done

under cocaine and usually with the dilatation by atropia. A solution of salycilate of eserine was uniformly instilled immediately before the corneal incision was made; this keeps the iris away form the wound for at least an hour or so after the operation and later on atropia may be used again. Irrigation of the anterior chamber was not used, the author preferring to wait for absorption of any cortical matter rather than risk the rupture of a suspensory ligament by efforts to remove that or of striped keratitis as a result of the chemical reaction of irrigating fluids. If there was a tendency to prolapse which did not subside after a short delay an iridectomy was performed. The dressings were usually not changed for 36 hours and then the eye was simply irrigated with boracic solution and atropine instilled. The tabulated histories of 41 cases were given, showing excellent results.

Discussion.—Dr. Hotz congratulated Dr. Risley on his good results and on the fair method in which he had presented a consideration of the subject. He thought that when we got to actual facts, the results in both operations, the simple and the combined, are about even and the apparent advantages of one are counterbalanced by some advantages in the other.

Dr. Clark said that he always preferred to perform the simple extraction when he could. He was in the habit however, of thoroughly irrigating the anterior chamber and asked why Dr. Risley had abandoned it.

Dr. Jackson stated that he knew of no one who would not do an extraction with iridectomy in certain cases but that as a rule he preferred the so-called simple extraction because he believed it to be the simpler operation. He did, however, believe that it produced better visual results; not that the average of vision as tested with the test card would be essentially different from that obtained in the combined extraction but that there seemed to be the same difference between the results of the simple and the combined extraction as between the vision with correcting lenses when the eye is under a mydriatic and when it is not. You may get the same vision, but there is a great deal of difference in the comfort with which the same letters are seen. As to the matter of irrigation he had never seen any reason to regret having done it and yet he had found himself recently leaving it out of his operations.

Dr. Thompson preferred to continue doing the combined extractions and said that he had never lost a case in which he had performed a preliminary iridectomy.

Economic Limitations of the Visual Acuity in the Various Trades and Professions. Dr. H. V. Würdemann, Milwaukee, Wis.—Dr. Würdemann gave an explanation of the different meanings applied to the term "blindness," as used in daily life and in scientific considerations. For instance, in science a man is not blind so long as he has perception of light, whereas in actual practice he is blind if the vision is weakened to such an extent that the weakened eye cannot be used in the attainment of a living. There is hardly any vocation which demands the extreme limit of sight as a condition of success and in each trade a great many individuals may be found who have comparatively poor sight but the same earning ability as those with normal eyes. In some of the professions and trades, however, the demands are much nearer the scientific limits of vision than in others and the loss of fractional parts of the vision will work a greater hardship to these than the same loss would in laborers not requiring such accurate vision. Men employed in common laboring work may have the vision reduced one-half without being compelled to change occupation, but a skilled mechanic losing this amount of vision would have to stop while perhaps he could afford to lose ¼ of his vision and still remain at his trade. It is necessary then to divide the trades into two large classes, those requiring a high degree of visual acuity and those requiring only the lower degrees. These must again be divided according to the different trades and in estimating the economic loss the conditions surrounding a particular individual must also be taken into consideration.

Dr. Würdemann has constructed a series of tables to show the economic value of vision as compared with the scientific value so that in case of damaged vision the economic loss may be easily estimated.

Further Report on the Visual and Aural Qualifications of Transportation Employes. Dr. Frank Allport, Chicago, Ill.—Dr. Allport presented a brief report as a supplement to his paper of last year giving the replies to his letters of inquiry received from 48 additional railroads. A new table had been prepared giving the details of examination of the various roads.

In addition to this Dr. Allport presented for the Committee on Examination of the Eyes and Ears of Railroad Employes, a report which set forth what the Committee considered should constitute such examinations and the report was adopted by the Section and the incoming Chairman authorized to appoint a committee to present the subject before the general association at its next annual meeting.

Report of Two Cases of Orbital Surgery. Dr. Adeline Portman, Washington.—Case 1. An infected ulcer of the cornea resulting in loss of the eye, which was enucleated in June, 1899. The patient, not satisfied with his personal appearance, insisted upon something more being done and implantation of a glass ball was tried and a very good cosmetic result obtained.

Case 2. The patient, a woman of 38, was badly scalded with hot coffee, causing the loss of an eye and distortion of the lids. An epithelial lip graft was used on the lower lid and proved more satisfactory than a skin graft tried on the upper, the patient being able satisfactorily to wear a glass eye afterwards.

Enucleation in Two Minutes. Dr. A. T. Mitchell, Vicksburg.—The author's method consists in first passing a deep scleral stitch to give a stout hold on the eye, then snipping the conjunctiva over the internal rectus muscle, the lower blade of a half curved pair of scissors is passed under the tendon and the latter raised into view. The tendon and all the tissue over it is now incised at one time, without cutting quite to the end of the scissors and the lower blade, still in the capsular space, is passed on under the superior rectus and superior oblique. Turning the scissors now, the inferior rectus and oblique are cut and rotating the globe outward, the nerve and external rectus are severed. He avoids preliminary dissection of the conjunctiva and does not use a hook in taking up the muscles.

Dr. Hiram Woods in discussing this paper said that Dr. Chisholm was in the habit of performing almost exactly the same operation 10 or 12 years ago. There was a difference in detail in that Dr. Chisholm held the severed tendon of the internal rectus by forceps while completing the incision round the globe.

The Newer Pathology of the Retina, with Special Reference to the Changes Produced in the Ganglion Cells by Certain Toxic Agents. Dr. H. Friedenwald, Baltimore, Md.—Dr. Friedenwald referred first to the stimulus given to the restudy of the retinal nerve elements by the recent advances in histology, especially the discovery of special staining, by Nissl. The latter's methods have made it possible to study more accurately than ever before the changes in the nerve cell and this has led to some promising work in the study of the pathology of the retina.

The investigations of Holden and Birch-Hirschfeld have shown that quinine amblyopia is due to the direct action of the poison on the nerve cell, and that the retinal changes preceded any changes in

the optic nerve. The same was found true in regard to Felix mass and methyl alcohol, but in the case of bisulphide of carbon, no retinal lesions were found.

Dr. Friedenwald's own experiments were conducted with the view of determining the effects of chronic alcohol poisoning, and rabbits were fed on pure ethyl alcohol, pure methyl alcohol and Jamaica ginger made with methyl alcohol, for a period of four months. It was considered very significant that ethyl and methyl alcohol produced similar changes in chronic poisoning, and the author was inclined to believe that the changes in the ganglin cells of the retina began before those in the nerve fibers, though he was not willing at the time to say positively.

Atrophy of the Retina. Dr. D. S. Reynolds, Louisville.—Dr. Reynolds reported two cases of loss of vision probably due to primary atrophy of the retina, but in neither case could the causative factor be determined.

A Case of Blindness Due to Drinking Bay Rum Compared with Report of Cases Due to Methyl Alcohol and Jamaica Ginger. Dr. H. Moulton, Fort Smith, Arkansas.—Dr. Moulton added to the histories of two more cases of wood alcohol to those that have been heretofore published. One of these patients drank a half pint of wood alcohol and the other drank freely of bay rum, supposed to have been made of wood alcohol. Studying all the cases reported, Dr. Moulton found a great similarity in the symptoms and thought it possible to make a diagnosis from these alone without knowing definitely that wood alcohol had been taken. Unless the dose was large enough to produce coma no unusual symptoms were presented on the first day. Usually on the second or third day nausea, vomiting, headache and dizziness appeared and were followed at once, or within a few days, by visual disturbances with total blindness in from 12 to 48 hours. In a few days some useful vision returned, only to be completely lost again in a short time. In every case but where the fields were studied a central scotoma was demonstrated. Atrophy of the papilla was universal, most pronounced in the temporal half, and in a few cases was preceded by a low grade of visible neuritis.

Discussion.—Dr. Ray said that he could not discuss Dr. Friedenwald's paper from a pathological standpoint, but he thought from the clinical standpoint the indications were that the influence in toxic amblyopia is first noticed upon the optic nerve.

He referred to the first case of wood alcohol poisoning which

he saw in 1896, and which Dr. DeSchweinitz has said in a recent article was probably the first reported case in this country. He had seen a second case within the last two years.

Dr. Hiram Woods said that he was not familiar with any form of blindness which gives the clinical features that all of these cases show; the intense gastro-intestinal symptoms, absolute blindness after a few hours or days, gradual return of sight to some useful vision, and then a settling down into a permanent atrophy of the nerve.

Dr. Hale reported some cases of methyl-alcohol blindness or intoxication resulting from the inhalation of shellac which is prepared with wood alcohol.

Dr. Casey Wood believed that these were probably all cases of idiosyncrasy, inasmuch as the number of people so affected is in all probability only a fractional part of those who use wood alcohol.

Dr. Harlan referred to the chemical analysis which had been made for him of the Jamaica ginger used by the patients he had seen. Wood alcohol was found to be the basis, and in all of the six or eight cases the ginger used was traced to one firm of manufacturers.

Dr. Jackson agreed with Drs. Moulton and Woods that the symptoms were pathognomonic of wood alcohol poisoning. He believed that the clinical history in most of these cases would bear out the pathological report referred to by Dr. Friedenwald and show that the disease in the eye was primarily an affection of the retina.

Complete Recovery from Double Neuro-Retinitis Clinically Resembling Albuminuric Retinitis, in a Case of Prolonged Hematuria with Symptoms of Bright's Disease. Dr. C. A. Veasey, Philadelphia, Pa.—This patient had been suffering with hematuria for eight months before she noticed diminution of vision. Ophthalmoscopic examination showed small feathery hemorrhages along the blood vessels in the neighborhood of the disc and in the macular region, the typical whitish stellate figure so characteristic of nephritic lesions. The fields were slightly contracted, but there was no scotoma and the vision was nearly perfect. Repeated examinations of the urine showed blood corpuscles and albumin, but no casts. The blood examination showed the conditions of a mild secondary anaemia. No tubercle bacilli could be found.

As the patient's general condition improved under diet and tonic treatment, the eye lesions cleared up, until at the end of 9 months the eyes appeared perfectly normal. The author was inclined to

think the explanation of the condition was that the patient first had an acute inflammation of the kidneys which ran into a chronic state, produced the eye lesions and then slowly recovered.

Discussion.—Dr. Wilder said that there were very few cases of albuminuric retinitis but what are of grave prognosis, and he had never seen a case that did not terminate fatally within two years. He had seen a case in which the retinal lesion improved very decidedly during that period, but the patient died within the prescribed time. He would fear grave developments in Dr. Veasey's case.

Dr. Ellett reported a case of a young woman whose Bright's disease lasted over a period of 15 years, and who developed typical albuminuric retinitis within two or three years of the probable onset of the kidney trouble, but the eye conditions improved markedly with the patient's general improvement in health. The ultimate condition was one of atrophy of the retina. He had also seen a case similar to Dr. Wilder's in which the vision improved, and though the patient died, there was no recurrence of the eye symptoms.

The Value of Excision of the Superior Cervical Sympathetic Ganglion in Glaucoma. Dr. George F. Suker, Chicago, Ill.—After considering at length the anatomy and physiology of the ganglion and the forms of glaucoma in which one might expect benefit from this operation, Dr. Suker concluded that the operation was justifiable, though the relationship between the ganglion and glaucoma is not yet determined. The operation is always indicated when an iridectomy or sclerotomy in any form of glaucoma has failed, and that it is the preferable procedure in absolute hemorrhagic glaucoma. It is not indicated as a substitute for iridectomy in the acute inflammatory forms of glaucoma unless iridectomy be refused.

Discussion.—Drs. Wilder and Black each reported successful operations upon the ganglion in subacute glaucoma.

Dr. Casey Wood said that he did not consider it the best operation for acute or subacute glaucoma, and that he did not believe that the chronic forms of this disease were truly of a glaucomatous nature.

Herpes Zoster Ophthalmicus, with Report of Five Cases. Dr. W. C. Bane, Denver, Colorado.—Dr. Bane reported five cases of this affection which is characterized by severe pain of a sharp, shooting nature, usually preceding the eruption by periods varying from hours to several days. The affection is almost invariably unilateral and

occurs in the course of the first and second branches of the fifth nerve. The groups of vesicles do not all appear at once, and their area is limited by the median line. When the nasal branches of the fifth are involved the cornea is likely to suffer. Two of the five cases were males, four were left sided, two had corneal ulcers and three of the cases had been diagnosed by others as facial erysipelas.

The Corneal Lesions in Acquired Syphilis. Dr. W. H. Wilder, Chicago, Ill.—Dr. Wilder related the histories of three cases deep-seated corneal disease in which syphilis seemed to be clearly the cause. In one case the lesion was very similar to that seen in an ordinary case of interstitial keratitis. In all of these cases the lesion affected only one eye, whereas the keratitis from inherited syphilis is usually symmetrical. Active syphilitic treatment is most useful in shortening the course of the disease whereas in the inherited form such treatment accomplishes little.

Discussion.—Dr. Risley said that in his experience, corneal disease, due to acquired syphilis, had been extremely rare, and when seen as a secondary or tertiary manifestation it was usually in broken-down, poorly nourished people. He thought it should be borne in mind, especially in regard to the colored race, that in any case of acquired syphilis there might also be an inherited taint.

Lachrymal Stenosis in Infants and Its Treatment. Dr. Dunbar Roy, Atlanta, Georgia.—Dr. Roy advocated the use of palliative measures, such as astringent washes accompanied by massage over the lachrymal sac, to be continued for many weeks, and he believed that this would obviate the necessity for splitting the canaliculus or passing probes in all but a very limited number of cases.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

S. Anderson Critchett, M. A., F. R. C. and E., president, in the chair.

Study of Inflammatory Exudates into the Vitreous.—This paper was read by Dr. Leslie Buchanan, and was illustrated by lantern slides made from his preparations. In the course of his remarks he said that the exudation into the vitreous in cyclitis is in the first instance formed in the pars ciliaris retinae, and more especially in the non-folded portion of it, but soon the folded portion, the fibrous stroma of the ciliary body and the retina take part in the production

of the inflammatory exudate. The exudate into the vitreous body is seen in the fresh sepcimen fixed in 5 per cent formalin as opaque white flocculent masses. It may be divided into zones, which, from the ciliary body inwards, are as follows, viz.: (1) A fibrous zone. (2) A fibrinous zone. (3) A fibrino-cellular zone.

The formation of fibrous tissue begins very early, probably about the eighth day. The formation of fibrous tissue is accomplished by the action of certain oval nuclei on the fibrin ending in the formation of fibrous tissue. The cells which form the exudate at first form masses on the non-pigmented layer of the pars ciliaris retinae and are of various characters. That these cells are not all derived from the endothelium is shown by bleaching and restaining, when many cells may be seen migrating through the pigment layer to the free surface. In the retina also there is evidence of migration. The cells thus exuded pass to a greater or less depth into the vitreous. Here they proliferate rapidly. In the more superficial portions of the exudate degenerated protoplasm may be seen not having a nucleus, though no instance of mitosis has been seen. Fatty degeneration follows and further migration of nuclei takes place, these finding their way back by the lymphatics. A fibrinous cyclitic membrane is thus left infiltrated with fat and highly vascular. The fat is absorbed the blood vessels are gradually constricted, leaving a comparatively avascular fibrous tissue layer, by the contraction of which the eye is distorted and destroyed. A further change is the formation of true bone. Spherical globules are formed which grow, forming a solid mass penetrated by blood vessels and finally converted into bone. The bone corpuscles are probably fibrous tissue corpuscles. The cavities of the bone are lined by osteoblasts containing blood vessels, fat and crystals of fatty acid.

Case of Paralysis of the Third Nerve with Unusual Complication.—This case was reported by Mr. Mules. The patient was a man aged 75, who, feeling ill on May 4, of last year, proceeded to treat himself on the following original plan. He first took half a box of "wind pills," together with a variety of other sorts. Feeling no better, he took two ounces of a solution of tartar emetic. The vomiting having ceased two days later and feeling his head very sore, he applied to his forehead and scalp various applications, chiefly used for veterinary purposes. He became so much worse that Mr. Mules was sent for. Incisions were then made into the oedematous scalp and ten grains of calomel were given. The following day,

May 10, patient was better, though sloughs covered the scalp and there was severe pain. It was then noticed that there was paralysis of the third nerve. On May 27 the scalp had healed, but the paralysis remained. The author thinks that the original cause of the trouble was herpes of the fifth nerve. This was the cause of the patient feeling ill in the first place. The vesicles were never seen on account of the applications, which causes so much destruction of tissue. As a sequel to the herpes paralysis of the third nerve ensued.

Mr. Devereux Marshall referred to an exhaustive paper on herpes by Head and Campbell, published last year in Brain.

Dr. Aldren Turner saw no reason why the third nerve should not be affected, and did not consider motor paralysis uncommon after an attack of this disease.

Mr. Marcus Gunn asked if there had been an injury, and mentioned a case in which an attack had definitely followed such.

Mr. Johnson Taylor asked if any vesicles had been seen on the cornea, and in reply, Mr. Mules stated that none had been observed.

Mr. Mules also recounted a case of *Double Symmetrical Opacities of the Cornea.* The patient, aged 70, developed opacities of the cornea eight years ago. These were symmetrical, brownish in color, and had been increasing. The apices were at the pupils and their bases at the corneal margin. A vertical slit was present in each. One was removed by scraping, but the other was removed far more easily by means of a fine knife inserted beneath it. The result was quite satisfactory.

The president had watched a similar case for seven years, but it had not reached the pupil, and he had done nothing to it at present.

Dr. W. H. A. Rivers described a form of *erythropsia* which appeared after exposure to high illumination, as a well defined deep red border round a white object. The phenomenon may be regarded as an intermediate link connecting the ordinary forms of erythropsia with the transient red border seen around a white object which has been described by Shelford Bidwell.

It was shown that Bidwell's phenomenon, "border erythropsia," the artificial erythropsia of Fuchs, and clinical erythropsia such as occurs after the removal of the lens, are probably closely related to one another.

The causation of erythropsia in general was considered and reasons were given for believing that all forms are due to the coloration

by the light stimulating the retina by blood, and this may be produced in several ways: (a) By transmission through the sclerotic, etc.; (b) by internal reflection from the lateral walls of the eyeball; (c) by transmission through the anterior layers of the retina. The experiments of Birkhoff show that erythropsia may occur when light is prevented from passing through the peripheral part of the eyeball, but these experiments do not exclude the third of the sources above mentioned.

Remarks were made by Dr. Edridge-Green and Mr. Swanzy. Dr. Rivers briefly replied.

Two cases of *Eye Injury Due to Lightning* in South Africa, by Major M. T. Yarr, who stated that while encamped in the Orange River Colony, in March, 1900, they were exposed to a violent thunder storm. Major H. had his tent pole struck, at the same time he felt tingling down the right side of his head and right arm. He became partially unconscious, but soon recovered this, but the tingling persisted for some days. Four months later he discovered accidentally that he was practically blind in the right eye, and was invalided to the base hospital. When seen by the author, in August, 1900, he could only count fingers at three feet. There were several large haemorrhages, evidently not of recent date, and patches of atrophy in the retina in the region between the superior and inferior temporal veins, with a few scattered and much smaller hemorrhages in the periphery; some engorgement of the veins; pallor of the disc, and contraction of the arteries. The left eye was normal.

Case 2. Richard C., aged 25, a private in the 2nd Royal Berkshire Regiment, was employed on telephone duties at Belfast, Transvaal. On Oct. 13, 1900, he was sitting at his "operating table" during a storm, when his instrument was struck by lightning. He fell, and on regaining consciousness he was unable to see. He had sustained no bodily injury, but his instrument was bent. The next day he could distinguish between light and dark; about a week later he had perception of light in both eyes and could count fingers with the left. Tension was normal. There was a large retinal detachment in the right eye running in wavy whitish lines inferiorly. The left eye also showed a large detachment, but spread over a wider area. The vision had been previously quite good.

The following card specimens were shown:

Dr. A. A. Hudson: *An apparatus for performing massage on the eyes by means of a vibrating hammer.*

Dr. A. Bronner: *Growth of the Conjunctiva from an old man.*

Major H. E. Drake-Brockman: *A new eye speculum.*

Mr. J. H. Fisher: *Subretinal Cystic swelling in the center of the Fundus.*

Mr. Inglis Taylor: *Tubercle of the Iris.*

Mr. Richardson Cross: *Congenital Fibro-Vascular Tumor removed from the eye.*

Mr. Stanford Morton: *Double Coloboma of the Lens.*

Mr. Doyne: *Hole in the Retina.*

CHICAGO OPHTHALMOLOGIC SOCIETY.

A joint meeting with the Neurological Society was held, with Dr. Casey A. Wood in the chair.

Dr. W. H. Peck reported three cases of *Hysterical Amblyopia.*

Case I. Young lady, aged 27, who had paralysis of the left external rectus, of the right superior rectus, internal rectus, and inferior rectus muscles. Ptosis right. Paralysis of accommodation right. There was contraction of the frontalis muscle, causing an elevation of the right eyebrow about half an inch above the left one. The field of vision was slightly contracted, but no reversal of the color fields except in one place in the right field. Vision right eye $\frac{20}{30}$; left eye $\frac{20}{20}$; small amount of hypermetropia in each eye. Right pupil dilated. At fifteen feet with a red glass over the right eye she sees three red flames about two feet above the white. She has an enlargement of the thyroid gland.

Case II. A girl, aged 13, who had burning, smarting, bursting feelings in her eyes for three years. She experienced difficulty in seeing at a distance or at close range in school. There was no lesion discoverable with the ophthalmoscope. The perimeter showed a very marked contraction of the field of vision, concentric in character, and there was complete reversal of the color fields. There was spasm of accommodation. The vision was $\frac{20}{20}$ in each eye taken on a dozen different days, but in every instance the moment a neutral glass was put in front of either eye she would read $\frac{20}{20}$ perfectly and without any hesitation.

Case III. A girl, aged 10 years, who had pain in the eyes, blurring of vision and headaches. She was on the verge of St. Vitus' dance. R V=5/200, L V=6/200. The ophthalmoscope revealed nothing. Her refraction under a cycloplegic is R +0.25 sph. $\frown$ +

1.75 cyl. axis 85° = $\frac{20}{200}$ L — 0.75 sph., ⌒ + 3.50 cyl. axis 100 = $\frac{20}{200}$. The field of vision is concentrically contracted from ten to fifteen degrees, and there is reversal of the color fields.

Case IV. A girl, aged 10 years, suffering with intense blepharospasm and blindness in the left eye, with vision reducen to $\frac{20}{200}$ in the right eye. She has only a slight error of refraction with the retinoscope and upon placing the correcting lenses in front of her eyes in the light room she immediately read $\frac{20}{20}$ with either eye. She has had no recurrence of the trouble since.

Case V. A young girl, who had arrived at the age of puberty. R V equals $\frac{10}{200}$; L V 0, not even perception. He was unable to find any ophthalmoscopic changes and only 1½ diopters of hypermetropia in either eye, with the retinoscope during cyclopegia with atropine. She was referred to Dr. Harold Moyer, who blindfolded the right eye, placed stools and various obstructions in a zig-zag row across the room and told her to walk across the room. She complied very promptly, and carefully avoided every obstruction as easily as anyone could.

The four latter cases present many of the features of hysterical amblyopia; they all occurred in adolescents. They had the characteristic concentric contraction of the fields of vision, also reversal of the color fields, spasm of accommodation and blepharospasm, also absence of any demonstrable lesion of the fundus with the ophthalmoscope.

Dr. Harold N. Moyer, referring to the first case reported by Dr. Peck, stated that in August, 1900, the patient noticed that her eyes blurred considerably, and that she could not see distinctly. In looking at steps she could not tell whether there was one or half a dozen. Her eyes got better for a time, and she could see well again. In February of this year they began to blur again; the left eye turned in; then got glasses, left eye came straight, and she could see well again. April 28th, left eye turned in again, became very much blurred either with or without glasses. Right eye began to droop about two weeks ago. In February there was some droop in the left eye. It has never wholly disappeared, although it has greatly increased in the last week. Knee jerk normal, apparently the right slightly greater. No swaying. Walks backwards and forwards with eyes closed. Stands on one foot. Area of anesthesia to light touches on left side from fourth rib to seventh, corresponding area in back.

Single line on left side at fifth rib, but doubtful. With right foot does not distinguish heat from cold with normal precision, the right foot showing greater improvement than the left.

Dr. William H. Wilder reported a case of *Persistent Mydriasis after the use of Homatropine.* The man was twenty-seven years of age, of good physique, iron-moulder by occupation. In the last three years has suffered a great deal from occipital headaches, possibly caused by an injury to the head which occurred some time before. A clot of blood was removed from beneath parietal bone by operation and the headaches completely relieved. Homatropin was instilled and the patient found to have simple hypermetropia of half a diopter, but no glasses were ordered. He was not seen again for about ten months, when he stated that the pupil of his right eye had remained dilated since homatropine had been administered, and on examination Dr. Wilder found it dilated to about six millimeters in diameter. It did not react either to light, accommodation or convergence. He had accommodative power of only about 2.5 D. The left pupil was active as well as the ciliary muscle. Mydriasis persisted after the use of pilocarpine; although he could get contraction from the pilocarpine, the condition would last only a few hours.

Discussion.—Dr. Dodd asked whether someone else had watched the pupil from the time the mydriatic was used, or whether Dr. Wilder merely accepted the patient's statement. He saw a case not long since with a complete dilatation of the pupil, although the patient was unaware of it until a member of the family called his attention to it.

Dr. Pinckard said he saw a similar case in a girl in whose eyes homatropine was instilled. The pupils remained dilated with complete paralysis of accommodation aften ten months' observation and treatment with solutions of pilocarpine and eserine. He thought the case was hysterical.

Dr. Casey Wood stated that in looking up the literature of homatropine mydriasis he ran across half a dozen cases similar to the one reported by Drs. Wilder and Pinckard. He thought there was something more than hysteria connected with these cases, and that perhaps there was an organic element which followed the use of homatropine. Cases of dilated pupils were not so frequently seen after the use of duboisin, atropine, etc., as after the employment of homartopine, and why, he did not know.

Dr. Wilder, in reply to Dr. Dodd, said that he had taken the patient's statement that the pupil had been dilated since the homatropine was instilled.

Probable Tumor of the Pituitary Body.—Dr. Daniel R. Brower presented a patient for diagnosis. The patient, a boy, five years of age, weighed eighty-five pounds. He first came under his observation two months ago at the County Hospital, at which time his weight was 92 pounds. At a subsequent examination, made about a month ago, the boy weighed 80 pounds. He presented some comparative measurements, and said that according to Dr. Christopher, the weight of a normal child of the same age was 40 pounds, while this boy weighed a little over 90 pounds at the time he first saw him. The height of a normal child is 41 inches, while this boy is 47 inches. Numerous other comparative measurements were given of different parts of the body. He did not think the case was solely one of excess of fat. The giantism was not confined to the mere deposition of fat. What first attracted his attention to the child was a marked nystagmus, which is vertical. Dr. Hotz examined the boy two years ago, and found atrophy of the optic nerve, with restricted vision and nystagmus. The atrophy must have been either congenital or developed from a central lesion. The field of vision is so contracted as to be almost absolutely lost in one eye—the right. There is likewise little atrophy in the left eye. There is loss of both patellar tendon reflexes. Dr. Brower thought the case might prove to be one of tumor of the pineal glands or of the pituitary body. In the last number of the Yearbook (Gould's) there is a somewhat similar case reported in which a diagnosis was made of tumor of the pituitary body, and at the post-mortem examination it was found to be a tumor of the pineal gland. In the opinion of Dr. Brower this case is either one or the other, in all probability. He did not know how to account for the patient's extraordinary overgrowth in any other way. During infancy the patient was only the size of an ordinary child. The excessive growth began when he was three years of age, and continued rapidly until he saw the patient at the County Hospital, when he began the administration of desiccated thyroid. Since then the weight of the boy has been gradually diminishing until now he weighs only 85 pounds.

Dr. Brower in reply to Drs. Church and Wood, said there was nothing which suggested myxedema and there was no history of early headaches. The muscular strength of the boy was considerable; that irritability was the most striking symptom the boy had.

Dr. Gradle narrated a *case of retrobulbar neuritis.*

Dr. Archibald Church presented *two cases of tabes in males,* and discussed briefly the Fraenkel method of exercise as a valuable adjunct

in the treatment of locomotor ataxia. The first patient presented, up to last November, could only drag himself along with the aid of crutches, but since that time, by the Fraenkel system of exercises, great improvement in locomotion has taken place, so that the patient can walk about as well now with his eyes closed as when they are open. Dr. Church passed around some photographs showing the patient in a number of contorted positions. The patient is able to make contortions without the slightest difficulty. He regarded the case as one typical of tabes, with every one of the classical symptoms being present.

As to the second case, two or three years ago the patient had, at first, ptosis of the left eyelid, associated with more or less disturbance of the third nerve and its branches, so that there was double vision. A short time afterward this cleared up in part, then recurred. Later on the patient lost vision entirely in the left eye, while vision in the right became decidedly reduced. Under the Fraenkel system of exercises coordination and vision improved. Patient presented evidences of middle ear disease, and slight deafness with tinnitus in one ear. After a vertiginous attack, the patient was examined and nerve deafness found. The speaker thinks the auditory nerve plays as prominent a role in the symptomatology of tabes as does optic atrophy.

He presented a series of interesting perimeter charts which were made by Dr. Hotz in a case of tabes that had been under his observation for four years.

In the discussion, Dr. Wood stated that there was no question about the implication of the ear in tabes.

Dr. Coleman stated that he had examined one of Dr. Church's patients, and said there was an interesting pupillary condition. There was decided myosis of the right pupil, it being reduced to one-third its normal diameter. In the right pupil the Argyll-Robertson symptom was marked, while the left pupil was fixed, both as to convergence and light. It was fixed to the extent that it did not react in the slightest when an oblique light was thrown upon the left eye. The fundi were normal in appearance. Vision was good. This pupillary condition made its appearance a year subsequent to the onset of the ataxic symptoms. It appeared, he believes, somewhat later than the lightning pains which were attributed to sciatica.

Dr. Dodd saw the second patient who was presented by Dr. Church at the beginning of the trouble. The patient came to his clinic immediately after paresis of the left internal rectus began, and

gave a history of having suffered from a severe chilling at the time. Following that symptom, the paralysis never being complete, patient began to notice that his sight failed and atrophy began in that eye. There were no general symptoms. This was about three years ago. Some time later ptosis began and was nearly complete, but at present this has largely disappeared, and the paresis of the internal rectus was more marked at that time than it is now.

Dr. Wood added a word or two of hopefulness regarding certain eye symptoms in tabes. He recalled a patient who was regarded as almost blind. There appeared to be optic nerve atrophy, but the patient's vision today is much better in all respects. In the majority of cases, the eye symptoms in tabes should be looked upon as being as hopeful as the other symptoms. The patient he had in mind made as remarkable an improvement as is shown by any of the charts exhibited by Dr. Church. In many instances, however, decided improvement is not noticed.

Diagnosis of Locomotor Ataxia From Optic Nerve Atrophy.—Dr. H. B. Young, of Burlington, Iowa, in connection with the diagnosis of tabes, reported the following cases:

Case I. Ben W., aged 38; railroad brakeman; first seen in April, 1888. Had just "laid off" for ten days because of a bilious attack. Vision, right eye, $\frac{20}{70}$, left, $\frac{20}{50}$. Eyes staring and complains that the letters are "flitting." Pupils small and intellection slow; knee reflex absent; stands unsteadily, and has a jerky walk; color sense fair, but visual fields limited—in right to a small circle surrounding macula, in left to an ellipse which extends relatively more to the temporal side. Disks are pale; body poorly nourished. He was kept under observation for several months, during which time the blindness steadily progressed, and coordination became more and more difficult. A diagnosis of tabetic disease was decided upon, and this was subsequently concurred in by Dr. Brower, of Chicago. At the end of a year he was practically blind; locomotion was very difficult, and emaciation extreme. Three months later, after several weeks of complete mental obscuration, the end was reached.

Case II. Charles J.; aged 33; a machinist; first seen in April, 1890, on account of asthenopic symptoms. Vision, right eye $\frac{20}{20}$; left eye $\frac{20}{40}$, after correction of H 0.75, D. (homatropin test). No other abnormality noticed. July 1st of that year, without having seen the patient, he left for a three months' vacation in Europe. Immediately on his return the patient came to him to say that

he had had so much eye trouble while he was away that he was obliged to consult another oculist. He found well-advanced optic nerve atrophy in the left eye, vision being reduced to counting fingers at a short distance in a limited field. Vision in right eye still normal. Knee jerk abolished. Coordination so nearly normal that there was doubt as to impairment. Complained of head pains, but nothing definite as to lancinating pains in body or extremities. Ill-defined, but probable, history of syphilis; but as he was a foundling, the inherited might be confounded with the acquired in the later manifestations then under consideration. Three months later the right eye began to fail, the left having then only a bare perception of light, and within another three months, in spite of potassium iodide, galvanism, bichloride of gold injection (Shurly's treatment), and other therapeutic measures, blindness was practically complete. During this time patient visited a well-known alienist in Chicago, who made a diagnosis of tabes dorsalis, possibly of specific origin. He subsequently went to St. Louis, where a similar diagnosis was given by another well-known alienist. While making an Easter visit, patient's condition was reviewed. Body well nourished; quantitative light perception in both eyes, better with the right; knee jerk *nil;* patient stands well, walks well. In short, he tramps for a living, selling books and notions.

The author considers the diagnosis of locomotor ataxia from optic nerve atrophy and absence of knee jerk, without other manifestations, as unreliable. Something more is required, and while the profession is looking for that something more, he urged adherence to the teachings of Schmeichler.

Leucosarcoma of the Iris.—Dr. W. F. Coleman narrated the history of a case of Leucosarcoma of the Iris. Six years ago the patient was struck in the right eye by an exploding gun cap, and iritis followed, which afterwards cleared up, and patient had no further attack until the 21st of January last, when he consulted him regarding a beginning of iritis with normal vision. He noticed a fibrous exudate on the iris near the lower border, also a slight white floating membrane in the posterior chamber arising from the temporal side of the iris. The course of the iritis was unusual, and he suspected that the patient had a foreign body in the eye. A skiagraph was therefore taken which was negative. This did not convince him at all, because he thought the foreign body might be small and encapsuled. The persistence of the episcleral injection below the

cornea puzzled him very much. A week ago a nodule appeared midway between the ciliary and pupillary edges of the iris and some fibers from the temporal side of the iris seemed to cover the outer half of the growth while the growth lies on the iris, on the nasal side. With a corneal magnifier it is seen to be quite vascular, and has the gross appearance of a lipoma. As regards the diagnosis, he could only surmise three things—tubercle, syphilitic papule, or a leucosarcoma, or possibly a cyst. Dr. Coleman gave his reasons for believing the case to be one of leucosarcoma.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR. FRANK ALLPORT, 92 SLATE ST., CHICAGO.

The well known oculist, Dr. S. Baeck, of Gleiwitz, is dead.

Professor Uhthoff, of Breslau, was recently elected Privy Medical Counsellor.

Dr. A. Hitchcock was recently appointed Ophthalmic Surgeon at the Boston Dispensary.

Dr. Alexander Deas Davidson, of Swansea, a well known ophthalmologist, died on December 7.

Dr. W. F. Norris was recently elected vice president of the College of Physicians of Philadelphia.

Dr. B. A. Randall has resigned the position of ophthalmic and aural surgeon to the Methodist Hospital, Philadelphia.

Privatdocent Dr. Schieck, now at Halle, will accompany Privy Counsellor von Hippel to Göttingen and remain with him there.

At the St. Joseph Hospital, Lorain, Ohio, Dr. H. Wooster Patrick was appointed surgeon in the eye, ear and throat department.

Dr. F. W. Harvey has been appointed surgeon in the Ophthalmological Department of the Royal Victoria Hospital, of Montreal, Canada.

The New Briton Hospital of Connecticut, has elected Dr. Geo. J. Holmes as oculist and aurist.

Dr. Arthur G. Hobbs and Dr. James M. Crawford were recently elected to the board of the Presbyterian Hospital at Atlanta, Ga.

Dr. Harry Friedenwald, of Baltimore, left with his family, July 4, to spend the summer in Europe.

The Northwestern University School Alumni Association held its annual meeting in June. Dr. Wm. A. Mann, of Chicago, was elected president for the coming year.

Dr. George E. Baxter has been appointed physician to the State Institute for the Blind, at Jacksonville, to succeed Dr. Frank P. Norbury, resigned.

The Maryland Medical Journal Company held its annual meeting in Philadelphia, June 13. Dr. Hiram Woods Jr. was elected as one of the directors.

Professor Panas, of Paris, delivered his last clinical lecture June 17; the hall was crowded with his friends and pupils. Twenty-two years previously on that date he assumed the duties of the newly-created chair of ophthalmology, and to his efforts since is due in great measure the progress of this branch of medicine in France.

Dr. Lucien Howe is ophthalmic and aural surgeon, and Dr. Julius Pohlman consultant in the new German hospital recently opened at Buffalo.

Drs. G. E. deSchweinitz, Charles A. Oliver, Howard F. Hansell, and John W. Croskey have been appointed ophthalmologists to the Philadelphia Hospital.

Dr. Herman Knapp is enjoying an outing on the Mediterranean.

Dr. H. E. Lewis was elected ophthalmic and aural surgeon and Dr. Chietien Zaugg consultant at the annual meeting of the directors of the Fanny Allen Hospital, Burlington, Vt.

Archivos de Ophtalmologia is the name of a new monthly published in Madrid, of which the first number appeared January 8, 1901. It is edited by Martinez, and will try to represent the best (Spanish) literature of both the old world and the new.

The thirty-sixth session of the Ophthalmological and Otological Society, of Washington City, was held March 12, at the office of Dr. H. A. Polkinhorn, who represented the paper of the evening, on "The Use of Suprarenal Capsule in Ophthalmic Practice."

The Westphalian Oculists met February 2, 1901, in the Hotel Waker-Parmann, Dortmund. Among other papers discussed was one by Professor A. Peters, of Bonn, on "Acute Retrobulbar Neuritis," and also a paper on "Trauma of the Eye," by Dr. Fischer, of Dortmund.

Dr. Berenstein, of St. Peterburg, died of pneumonia on January 5, 1901. He was well known in Germany and was much beloved by his colleagues in St. Petersburg. Born in Lithuania in 1865, he finished his studies in Dorpat. He was with Hirschberg in Berlin, and Leber in Heidelberg. He went to St. Petersburg after he had been some time at Lodz.

Richmond (Va.) *News.*—On the first of the month there was held a meeting for organization of the ophthalmologic and otologic section as a branch of the Richmond Academy of Medicine and Surgery. It is composed of the members of the profession practicing

only on the eye, ear and throat. The meeting will be held once a month at the different members' houses, the chairman of the meeting to be the entertainer of the evening. Dr. W. J. Mercer was elected permanent secretary.

Pink Eye in Newark.—A New York daily publishes a despatch from Newark, N. J., stating that the small boys who bathe in the more or less dirty water of the river, canal and bay, are suffering from sore eyes. The paper says that "physicians call the disease 'cayri neticite,' and they say it is caused by a germ in the water. It is contagious." The compositor must have had conjunctivitis himself who twisted the word into such awful shape.

A Russian medical man has decided that the electric light is least injurious to the eyes. He says that the oftener the lids are closed, the greater the fatigue and consequent injury. By experiments he finds that the lids would close with different illuminations per minute: candle light, 6.8; gas, 2.8; sun, 2.2; electric light, 1.8.

Pennsylvania Institution for the Instruction of the Blind.—The new buildings of the institution at Overbrook were inspected by a number of invited guests on the occasion of the formal opening. The program included exercises in the assembly hall, inspection of the building, refreshments, exercises in the gymnasium, and a concert in the assembly hall. The occasion was full of interest. This institution is engaged in a noble work.

Dr. Harold Wilson has examined by methods similar to those of Allport, the eyes of the Detroit school children at the instance of the board of education. "A total of 1,936 children, or 6.7 per cent, as having defective eyesight, and nearly one-half of this number, 923, or 3.2 per cent, wear glasses. In 1897 the supervisor of physical training reported 1,205 pupils with defective eyes, and 415 wearing glasses. Among the grade schools, the Clay reports 16.6 per cent with defective eyesight, and 7.2 per cent wearing glasses; the Cass, 12.1 per cent and 6.2 per cent respectively, while the Garfield has only 1.8 per cent with defective vision and 0.8 per cent with glasses, and the Lyster about the same number. The Eastern High School—the only high school the report from which is complete—has 12.2 per cent with defective vision and 13 per cent with glasses. The cause of such a wide discrepancy between schools of similar grade would be a very proper subject of inquiry. It does not appear in the statistics in my possession.—*Annals of Ophthalmology.*

Dr. Scurry L. Terrell, of Dallas, Tex., was appointed chairman of the ophthalmological and otological section of the Central Association of Texas.

We copy an advertisement from one of the Chicago papers. It speaks for itself: We teach optical work, chiropody, manicuring, hairdressing or barber trade in from two to eight weeks, men and women; free clinic; expert instructions, lectures; diplomas granted. Call or write, —— College, —— St.

Javal, who became blind not long ago, has invented a simple apparatus which enables blind persons to write with pen or pencil on ordinary paper without any danger of writing one line on top of another. Javal submitted his invention to the Paris Academy of Medicine at a recent meeting. The contrivance consists in the main of a light board, upon which the arm of the blind writer rests. At one end of the board there is a metallic pocket in which the elbow of the writer is placed. The board rests on a pivot near the elbow and is turned from left to right in writing, while the paper remains in the same position. The lines of writing are slightly curved, forming sections of a circle, the radius of which is equal to the distance between the pivot and the pen of the writer. When the writer has reached the end of the line he presses upon a spring, which causes the paper to move up a distance equal to the distance between two lines. Knowing that the point of a pencil soon wears off and the lines written with it indistinct and sometimes illegible, Javal advocated the use of American fountain pens. Sometimes the ink reservoir of those pens becomes exhausted or the pen refuses for some other reason to function properly. In such cases it would be possible that a blind person using such a pen might go through the movements of writing without leaving any record of the writing upon the paper. To avoid that Javal suggested that after every line the writer should draw a line with his pen across a narrow strip of tissue paper. If the pen is dry the line will have no effect upon the paper; if the ink, however, makes a mark upon the paper the latter will easily tear where it has become softened by the ink.

The following is part of a letter received from Dr. George J. Bull, of Paris: "During the debate before the French Congress of Ophthalmology, in May, on De Wecker's report on the value of irdectomy in glaucoma, Dr. Emile Javal, now totally blind in both

eyes from glaucoma, was led into the room by a servant and took one of the front seats. One speaker after another expressed his opinion on the subject, only to show that little is known with certainty and that we have to do with a disease which is far from being properly understood. At length Javal was called upon to speak, and, not rising, as did the other speakers, he turned in his chair towards the center of the room and began his remarks in a low tone. The men in the farther parts of the room stood up and came nearer, the better to see Javal and to hear him, and presently all were standing except the speaker and those in the few seats around him. It was a dramatic scene, not to be forgotten: the sightless speaker, his eyes covered with dark blue spectacles, his neck scarred from an operation to excise the sympathetic ganglion, a wounded soldier, indeed, and the older men in the group around him, with the younger men beyond, bending forward the better to hear the soldier's story. From time to time Javal ceased to speak, but no one broke the silence, for it was seen that he was reading with his fingers the notes he held on the table.

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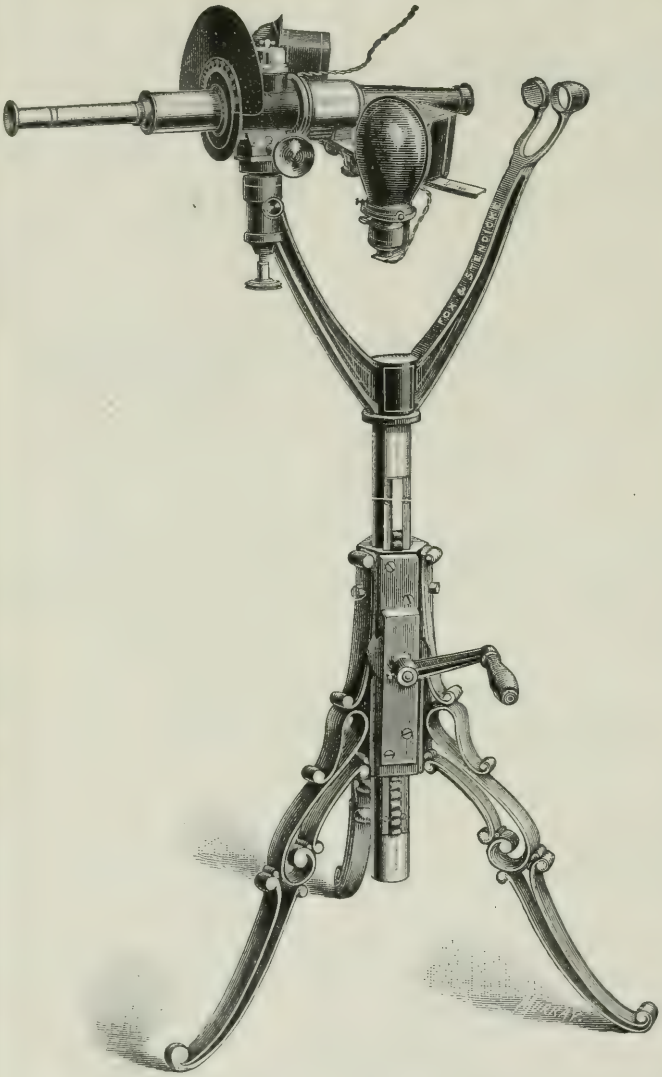

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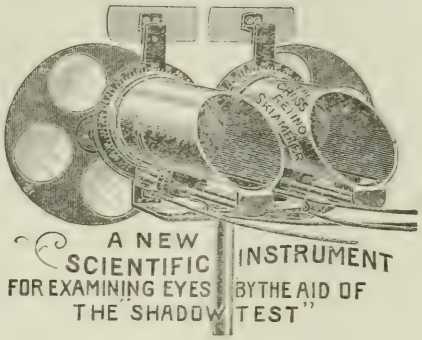

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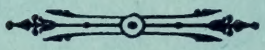

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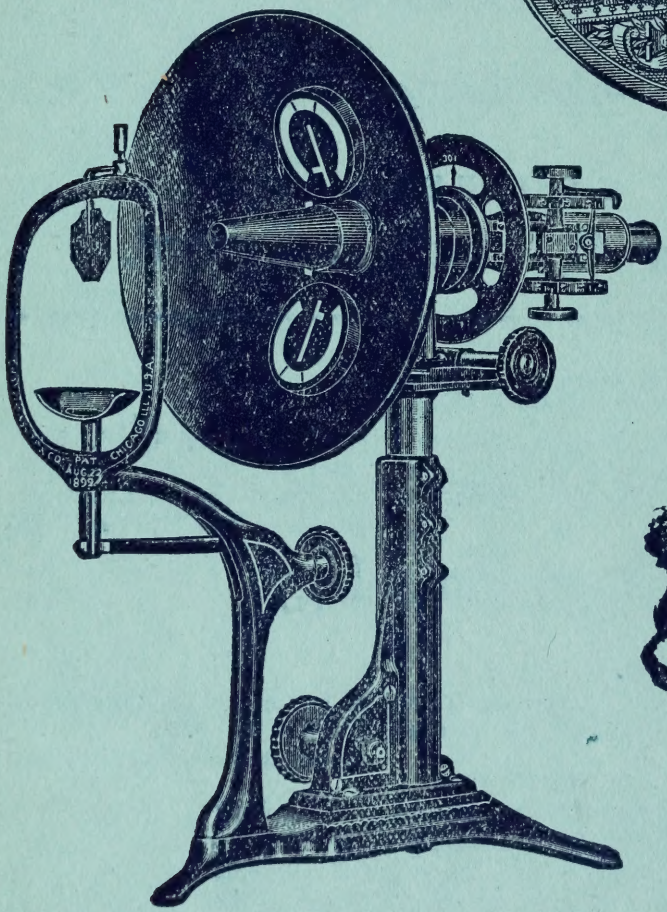

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